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Swanscombe Urban District Council.

SEXENNIAL REPORT

on certain matters

concerning

PUBLIC HEALTH

for the years

1958 to 1963

I N D E X

URBAN DISTRICT OF SWANSCOMBE

Report for the years 1958 to 1963

on certain matters concerning Public Health

April 1966.

TO THE CHAIRMAN AND MEMBERS OF THE COUNCIL

Mr. Chairman, Ladies and Gentlemen,

As soon as practicable after the end of each year it is the duty of the medical officer of health to make to the local authority a report for that year on the sanitary circumstances, sanitary administration, vital statistics and on any other matters on which it is considered desirable to report.

This review covers six years primarily because it was desirable to wait for the office accommodation which was so elegantly provided in 1964. A considerable time however has elapsed since then before the appearance of this report, one explanation of this is that the obtaining of the relevant facts and figures and the extraction of a concise interpretation or presentation for the local appraisal of public health is time consuming.

Whether such expenditure of time is justifiable is open to question. Nevertheless it is expedient that one local office should do what it can to record local public health affairs for future reference. Local attitudes can then be guided by local facts. Furthermore the medical officer of health has a duty to inform himself on matters likely to affect the public health of the district he serves. The preparation of this report is a means for such self-instruction.

Although it has been expedient to include as many as six years in this review the size of the population is such that this practice offers certain advantages. The statistics provided by our population are often in the form of small numbers which can produce rates distorted by the influence of chance. By placing six years under observation this influence can be modified and deductions made that are more meaningful than those based on one or two years alone.

This report contains much material provided by officers of other departments and other authorities or organizations. The information on most environmental matters largely concerns the work of the Council's public health inspectors upon whom so much of the maintenance of sound standards of environmental hygiene depends. I thank these colleagues for their co-operation.

The presentation of the statistical material is a product of the patience of the senior clerical assistant.

On behalf of my colleagues in the public health office and myself I wish to thank the Chairman and Members of the Public Health Committee for their support and interest during the period under review.

I am, Mr. Chairman, Ladies and Gentlemen,

Your obedient servant,

J. H. Hudson.

Medical Officer of Health.

SWANSCOMBE URBAN DISTRICT COUNCIL

YEARS 1958-1963

S U M M A R Y

The circumstances of Swanscombe suggest that in comparison with neighbouring areas a greater proportion of the population work in the Urban District or its vicinity and a smaller proportion consists of newcomers from elsewhere. As the centre of London is only 20 miles away this feature may be unique.

During the period under review the population increased but the rate of increase was less than in neighbouring areas and was largely dependent on natural increase. The rate of the latter was also less than that of neighbouring areas.

From 1960 to 1963 the adjusted birth rate showed a trend of increase but the birth rates 1958-63 were less than those of England and Wales and most neighbouring areas.

From 1960 to 1963 the adjusted death rate was greater than that of England and Wales and the neighbouring areas but the adjustment consists of an increase of almost a quarter to compensate for the estimated younger age of the population. The pattern of death 1958-63 as shown by the main causes is in harmony with that of England and Wales.

The infant death rates 1958-63 before birth and afterwards were much the same as those from England and Wales. There were four infant deaths from respiratory causes certified after a Coroners inquest.

The crude death rates from coronary disease, cancer all sites, cancer of the lung and motor vehicle accidents were similar to those of England and Wales.

Of the six deaths from motor vehicle accidents two were pedestrians, two were motor cyclists under 21 and one was a pedal cyclist under 21.

Two deaths from accidents at home occurred. Both were aged persons. There were two deaths from accidents at work of persons resident in Swanscombe and four deaths of persons resident outside England and Wales and therefore assigned to this district.

Over the ten years 1954-63 the suicide rate of Swanscombe U.D. was half that of England and Wales.

There was an exceptionally severe winter in the first quarter of 1963 but this was not reflected in the number of deaths in the first quarter.

Vaccination against poliomyelitis began in 1956 with the use of a dead vaccine. This was replaced by a live vaccine in 1962. A high percentage of Swanscombe children were fully vaccinated by 1963.

The percentage of infants vaccinated against smallpox was comparatively high but only in 1962 were some school children revaccinated and this was by family doctors.

The percentage of young children vaccinated against diphtheria and whooping cough was exceptionally high. Vaccination against tetanus was introduced in 1960 and a similar result can be assumed.

Smallpox was introduced into this country by air passengers in 1962. The neighbouring area was suspected as a subsequent source of infection. Certain questions relating to smallpox are discussed.

The incidence of registered cases of respiratory tuberculosis was less than in neighbouring areas.

The rate of house building was not so very much below the needs of the local population although much below the rate in neighbouring areas. Between 1951 and 1961 slightly more appeared to be achieved in the rehousing of the local population than in neighbouring areas.

The numerous results of water sampling show the water to be wholesome except for a deficiency of fluorine.

Improvements to the sewage works were completed in 1961. The undesirable capacity of the effluent to absorb oxygen was substantially reduced.

Food exposed for sale that was unfit for consumption or not genuine was of negligible amount.

Test explosions 1958, 1961 and 1962 in the Northern hemisphere resulted in a fall-out of radioactive material but the amounts deposited in this country were harmless.

No smoke control areas were created in Swanscombe.

Air pollution measurements showed that in the fog of December 1962 the smoke and SO_2 concentrations in the vicinity of Swanscombe were similar to those of other areas on the periphery of Greater London.

The question of dust from cement works is again reviewed with the conclusion that although research on the subject may not be necessary it is nevertheless desirable.

COMMENTARY.

POPULATION. The increase in the population in Swanscombe U.D. in the ten years prior to mid 1963 has been appreciably less than that of each of the neighbouring areas.

	Mid year population 1953	1963	Increase 1953-63	Percentage increase
Swanscombe U.D.	8614	9110	496	6%
Northfleet U.D.	19280	23450	4170	22%
Dartford town	38430	44460 *	6030	16%
Dartford R.D.	38610	56320 *	17710	46%

*1500 from R.D. to Town with 1957 boundary change.

The natural increase i.e. the excess of births over deaths 1954-63 has been as follows:

Year	Births	Deaths	Nat. inc.	Pop.	Rate of increase per thousand pop. S'combe U.D.	N'fleet U.D.	D'ford Town	D'ford R.D.
1954	130	79	51	8770	5.8	6.0	5.9	4.4
1955	126	80	46	8790	5.2	5.1	4.7	5.4
1956	141	81	60	8900	6.8	4.4	6.4	7.3
1957	123	78	45	8930	5.0	7.2	9.2	8.0
1958	128	83	45	8950	5.0	5.1	5.7	9.4
1959	105	82	23	8940	2.6	7.1	6.3	9.9
1960	136	88	48	9010	5.3	11.2	7.9	11.7
1961	138	88	50	8910	5.6	10.9	8.6	11.6
1962	154	92	62	9040	6.9	10.8	8.2	11.3
1963	156	98	58	9110	6.4	12.5	7.8	11.0

The rate for England and Wales in 1963 was 6.0.

To explain the comparatively slow natural and absolute increase of the Swanscombe population one might usefully consider the age constitution of the population, the circumstances of the young persons, and number of houses built.

Age constitution. Swanscombe appears to have a stable population with a greater tendency for each member to be born and to die in the district. One might expect therefore the age constitution to have been older than elsewhere.

The comparability factors show this not to have been the case. For births the factors for Swanscombe, Northfleet and R.D. up to 1962 inclusive were similar i.e. around .94. For deaths the factors were around 1.20 for Swanscombe and Northfleet, and only 1.10 for the R.D. and if one excluded the aged in the Stone mental hospital no doubt the factors would have been the same for all three districts. The appearance is that up to 1962 the age constitution of the three districts was not dissimilar.(No C.F.D'ford Town).

The circumstances of young persons. Young persons were housed either by Council enterprise or private enterprise. Those housed by the Council were I imagine usually residents of the district who had already started their families. Those housed by private enterprise were I surmise often residents from e.g. London

if the rehousing was in the dormitory areas of neighbouring districts. Such newcomers had a postponed birth programme to fulfil and thus in the neighbouring districts private enterprise housing not only increased the population with newcomers but also enhanced the rate of natural increase.

Swanscombe however differed from these neighbouring districts in being more industrial than residential and the industry being stable rather than expanding and those who occupied private enterprise housing here were probably from Swanscombe itself. Thus between 1953 and 1963 Swanscombe increased its population by the amount expected from the average natural increase. This was 5.5‰ which makes the increase over ten years 5.5 x 10 = 55 ‰ i.e. 6% of the population. The number of houses built in relation to population is discussed below under "housing".

Other features of the population. That the increase in population of 1953-63 was largely accounted for by the excess of births over deaths implied that Swanscombe had a stable population and in harmony with this presumption was the distribution of the economic groups in the community and the topography of the district.

At the time of the 1951 census the proportion of unskilled labourers in the Swanscombe population was greater than any other district in Kent. Similarly in 1960 the proportion of houses of low rateable value was the greatest of the four districts with which it is compared above (Table I).

The topography of Swanscombe shows its urban development to be isolated from the south by excavations and from the north by the Thames. To the east and to the west it has in essence only one main road communication. It appears to be a unique settled industrial urban community locally employed. It has no dormitory features yet is on the fringe of Greater London.

From a population with these characteristics one would expect many to live their whole lives in the district, terrace house and high street neighbourliness, higher than average death rates from bronchitis and stomach cancer and lower than average death rates from coronary disease and stroke (vascular lesion of the nervous system).

BIRTHS

The adjusted birth rates in recent years has been:

	1958	1959	1960	1961	1962	1963
Swanscombe U.D.	13.3	10.9	14.0	14.4	15.8	16.6
Northfleet U.D.	16.6	16.7	18.9	18.3	19.7	20.0
Dartford B.	15.9	15.6	15.9	17.6	16.6	15.4
Dartford R.D.	19.4	19.2	19.6	20.8	20.6	18.5
England & Wales	16.4	16.5	17.2	17.6	18.0	18.2

Although these birth rates are adjusted for the proportion in the population of females of child bearing age the lower rates of Swanscombe might still be linked with the comparative paucity of young newcomers.

I have no public health reason for the exceptionally low birth rate of 1959 unless it be that comparatively few additional houses became available in the years 1957, 58 and 59.

DEATHS

Adjusted death rates have been:

	1958	1959	1960	1961	1962	1963
Swanscombe U.D.	11.4	11.3	12.1	12.1	12.5	13.1
Northfleet U.D.	14.0	11.6	10.9	10.4	12.3	11.4
Dartford B.	10.6	11.6	9.9	11.8	10.6	11.0
Dartford R.D.	10.0	10.3	10.1	11.1	11.5	11.2
England & Wales	11.7	11.6	11.5	12.0	11.9	12.2

The death rates seem a little higher than in the neighbouring areas and I would attribute this to the greater proportion of aged persons in a stable industrial population, were it not that the rates are adjusted for age structure. The adjustment factor is 1.22 which attributes to us a younger than average population. The high death rate of 1963 does not appear to be associated with the severe winter of that year. There were 29 deaths in the first quarter in Swanscombe which is 30 per cent of the deaths for the whole year. If anything, this percentage is a little lower than usual for England and Wales, 1960-63, whose percentages were for the first quarter 33 per cent, with the exception of 1961 when there was no influenza and the figure was 28 per cent. The adjusted death rate for the first quarter was 15.5, Swanscombe that for England and Wales was 17.0, i.e. in 1963.

CAUSES OF DEATH

Table VI shows the pattern of the causes of death is very similar to that of Dartford Borough and that of England and Wales. Thus the chances in Swanscombe of dying from cancer were 1 in 5 and if 1963 is a guide there was a 2 in 3 chance that such a death would occur before 75 years of age. The chances of death from stroke were 1 in 8, from circulatory disease over 1 in 3, from respiratory disease 1 in 7.

CORONARY DISEASE

The 114 deaths from this cause 1958-63 gave a crude death rate of 2.1. The rate for the aggregate of these years for other areas was: Northfleet 1.4, Dartford Town 1.8, Dartford R.D. 1.8, London 2.07, England and Wales 2.05.

The 95% confidence limits of our death rate based on these 6 years deaths is $\pm$ 0.4 which means that chance had a probability of more than one in 20 of creating the difference between our rate and the rate for London and England and Wales. Statistically therefore the difference is not significant.

With the death rates from this cause based on six years experience chance had a probability of less than 1 in 100 of causing the difference of 0.7 between the Swanscombe and the Northfleet rates. The difference is thus "statistically significant at this level". Perhaps the explanation is that the age structure of the population was older at Swanscombe - the C.F. was greater in Swanscombe than Northfleet for 5 of the 6 years.

The above probabilities are from a nomogram (S. Rosenbaum B.M.J. 19.1.63).

CANCER

Swanscombe deaths from this cause 1958-63 were also 114 and gave a crude death rate for the aggregate of these years of 2.1 per 1000 population. The 1963 rate for England and Wales was 2.2. The annual numbers of deaths in Swanscombe were 17, 19, 17, 20, 20 and 21.

CANCER OF THE LUNG

Deaths from cancer of the lung 1958-63 were 6, 6, 8, 3, 2, 5 giving a total of 30. For the aggregate of these years the Swanscombe death rate was 0.55. The rates for England and Wales and for London were 0.48 and 0.67 respectively. The difference of the Swanscombe rate from these rates is not statistically significant.

CANCER OF UTERUS

The 6 deaths 1958-63 give an annual rate of much the same as elsewhere. The figure shows that in Swanscombe at the most only one life might be saved each year by a service for the early detection of cancer of the womb whereas about 4 lives a year might be saved by a cessation of cigarette smoking and consequent avoidance of cancer of the lung.

LEUKAEMIA

The 2 deaths 1958-63 are in harmony with the 1963 England and Wales death rate of 0.06 per 1000.

RESPIRATORY DISEASE

The 1958-63 deaths numbered 18, 8, 15, 17, 8. Thus the severe 1963 winter had little or no impact on this cause of death. These 74 deaths represent 14% of all deaths. The same %age applies to England and Wales.

DEATHS RELATED TO MATERNAL AND CHILD WELFARE

The last maternal death in Swanscombe was in 1937. With the present England and Wales death rate from this cause there should be expected here one death about every 20 years.

The infant deaths below certified by Coroner as due to a respiratory cause can be assumed to have been rapid unexplained deaths. These are a subject of general concern. The 1960 rate for such deaths at home in England and Wales was 1.3 per 1000 live births. The 2 Swanscombe such home deaths in the 817 births of 1958-63 is in harmony with this rate. The houses of the homes of the 4 infants dying at home and in hospital from this cause were not unfit.

The death rates of infants before birth and in their first year of life were in keeping with the rates for England and Wales (Table II).

Infant deaths Swanscombe 1958-63 have been:

	Month	Place	Sex	Age	Cause
1958	Mar.	Hosp.	F	5 mins.	Intraventric. haemorrhage. Prematurity.
	Nov.	Home	F	4 h'rs.	Cerebral haemorrhage. Prematurity.
	June	Hosp.	M	12 h'rs.	Haemolytic disease.
	Sept	Hosp.	F	1 day	Atelectasis. Prolonged labour.
1959	Nov.	Hosp.	M	7 h'rs.	Prematurity.) Twins
	Nov.	Hosp.	M	7 h'rs.	Prematurity.)
	Feb.	Hosp.	M	1 day	Prematurity.
	Oct.	Hosp.	M	1 week	Congenital malformation.
	Mar.	Hosp.	M	11 m'ths	Pneumonia. Congen. Malformation.
1960	June	Hosp.	M	1 hour	Prematurity.
	Oct.	Hosp.	F	1 day	Intraventric. haemorrhage. Prematurity.
	June	Home	M	3 days	Pneumonia. Coroner's inquest.
	Feb.	Hosp.	M	10 m'ths	Pneumonia. Coroner's inquest.
1961	Dec.'60	Home	F	1 m'th.	Ac. Tracheo-bronchitis. Coroner's inq.
1962	Oct.	Hosp.	M	6 h'rs.	Prematurity.
	Apr.	Hosp.	M	2 days	Placental insuffic. Congen. malformation .
	Dec.	Hosp.	F	3 days	Prematurity.
	July	Hosp.	F	3 m'ths	Congen. malformation.
1963	Jan.	Hosp.	F	1 m'th	Pneumonia. Coroner's inquest.

INJURY

ACCIDENTS

Man-made hazards are a feature of our environment to-day and accidents now form an important group of the causes of death. They form the content of a continuous modern epidemic for which the means of prevention has yet to be found. Risks need to be taken but we seem unable to ensure that they are reduced to a minimum and that the accidents that do happen are the products of risks accepted with precision and justification.

Factories and mines, transport boards and companies devote attention and pay respect to the risks in which they are involved. However, where the single individual is dominant on the road or in the home there is no one body charged with the responsibility of all aspects of prevention.

ROAD ACCIDENTS

In Great Britain in 1896, 2 deaths were registered as due to motor vehicles and from this small beginning a terrible stream of deaths and injury has followed. In the male surgical wards of hospitals a large proportion of beds are occupied by young men injured in road accidents, many of them maimed or permanently disabled.

In Swanscombe deaths of residents 1958-63, not necessarily on local roads, have been:

Year.	Age.	Sex.	Type of collision.	Place.
1959	45	M	Car/bus	Rochester.
1961	56	F	Pedestrian/car	Stone.
1962	17	M	Motor cycle/lorry	Stone.
1962	19	M	Motor cycle/van	Wrotham.
1962	70	M	Pedestrian/motor cycle	? Gravesend.
1963	17	M	Pedal cyclist/car	? Gravesend.

These 6 deaths 1958-63 gave a death rate of 11.1 per 100,000 population. The rate over the same period for Northfleet was 10.7.

Rates elsewhere have been:

England & Wales	1958:	12.1	1963:	13.5
Austria	1958:	26.4	1962:	20.9
Norway	1958:	8.1	1961:	10.4

This and neighbouring districts contain busy roads with fast moving traffic. The casualties on these roads include many residents of districts elsewhere and while these are a matter for our concern they do not enter into our death rate from this cause.

The following are taken from the Chief Constable's reports:

	Total injury accidents	Killed	Casualties seriously injured	Casualties Slightly injured	Total
Dartford R.D.					
1961	416	13	156	431	600
1962	336	16	134	342	492
1963	322	9	135	309	453
Dartford M.B.					
1961	315	13	87	300	400
1962	267	5	85	241	329
1963	317	4	112	273	389
Northfleet U.D.					
1961	121	3	33	111	147
1962	108	3	31	100	134
1963	115	1	28	122	151
Swanscombe U.D.					
1961	57	1	36	41	78
1962	44	1	16	45	62
1963	63	1	24	57	82

ALL OTHER ACCIDENTS

Up to the end of 1963 this Council had not made use of the permission it had received in the 1961 Act to promote safety in the home and for administrative reasons I have made no request to the hospitals for the details regarding admissions to hospitals from accidents in the home. I thus have no information on the casualties from this cause other than the deaths. These were:

Year	Sex	Age	Accident.
1961	M	78	Fall downstairs.
1963	F	89	Unlit gas jet.

The remaining deaths from other accidents were at work or associated with work. They were:

Year	Sex	Age	Accident.
1958	M	19	Drowned *
1958	M	21	Drowned *
1958	M	22	Crushed at work *
1958	M	36	Fall from roof
1961	M	19	Drowned *
1963	M	55	Crushed at work.

*These were persons resident outside England and Wales but assigned to Swanscombe U.D.

SUICIDES

In the ten years 1954-63 suicides have been:

	Av. Pop.	Number	Period	Rate/100,000/year
Swanscombe U.D.	9,000	5	1954-63	5.6
Dartford Town	42,000	56	"	13.0
Northfleet U.D.	21,000	23	"	11.0
Dartford R.D.	48,000	31	"	6.4
England & Wales	47,023,000	5,715	1963	12.1

In the period 1958-63 the only suicides were 2 in 1958, Females aged 58 and 71, both by barbiturate poisoning, the incidents were separate. Perhaps one might associate the comparatively low suicide rate with the

impression outlined above that a relative high proportion of the population live their whole lives in the district.

The 1963 death from homicide was due to inhaled blood following a fight.

INFECTIOUS DISEASES

Virus infections

MEASLES

As in neighbouring districts the biennial cycle is clearly apparent the disease occurring mainly in the years with odd numbers.

Notifications received

1952	16	1953	199
1954	4	1955	271
1956	16	1957	35
1958	0	1959	232
1960	0	1961	112
1962	6	1963	169

INFLUENZA

In the years 1958-63 influenza has appeared in the country as follows:

1958	Virus A2 influenza first quarter
1959	Virus A2 and B influenza first quarter
1960	No influenza the whole year
1961	Virus A2 influenza first quarter
1962	Virus B influenza in first quarter
1963	Virus A2 influenza in first quarter

The effect of the disease on the sickness benefit claims is shown in the appropriate graphs in the appendices. The disease in these years has had no other outstanding effect on Swanscombe.

POLIO-MYELITIS

In the period 1958-63 no cases of this disease appeared in Swanscombe. In the years 1954-57 the cases numbered 1, 1, 0, 2.

The vaccination figures were good. In the years 1959-63 83% of those aged 0 to 20 in 1963 had received 3 doses and by 1963 93% of primary school children had received four doses.

In 1962 a vaccine made from a live virus given by mouth was introduced throughout the country. This replaced the vaccine made from inactivated virus given by injection unless the latter was particularly requested. This new vaccine of attenuated virus is able to infect the intestine and by establishing itself there is able to prevent a further infection by the wild harmful viruses.

SMALLPOX

Smallpox was introduced by 5 air passengers into this country in December 1961 and January 1962 and there followed 62 indigenous cases in England and Wales with 24 deaths.

A Pakistani with smallpox was admitted to Long Reach Hospital on December 28th 1961. He died on January 7th 1962. A person working in Dartford but living in Woolwich was admitted with smallpox on January 24th. A person from Hornchurch working by the Thames opposite Dartford was admitted with smallpox on January 29th. 4 suspected cases of smallpox were isolated in the hospital, of these, three finally were regarded as not smallpox while one may have been smallpox without a rash.

SMALLPOX (Cont'd)

On January 16th at a meeting of the Swanscombe Council a member put forward the suggestion that each member should be vaccinated and the Council should thus set a public example for others to follow. I emphasized that the opposite course should be taken and that nothing should be done to create a public demand for vaccination the risks of smallpox in this district being less than the risks of community vaccination. This view was accepted.

However by the end of that month circumstances had changed, Dartford was regarded as a possible source of infection and the risks of smallpox appeared in this neighbourhood to be overtaking the risks of community vaccination. A request was therefore made to the Local Health Authority for the opening of a clinic for community vaccination but this was not granted largely on the grounds that to do so would create public anxiety and that the smallpox risks did not justify the further gratification of what had also become an unsatisfied public demand.

The demand for vaccination by the public however was largely met over the next month or so by other services. Except where contra-indicated general practitioners vaccinated their patients when so requested and industry and hospitals vaccinated their staff. The records, Table IX, show a marked increase on previous years. They were however incomplete, as under pressure of work all vaccinations were not likely to be recorded in general practice, and vaccinations by industry and hospitals are not in any case included in L.H.A. records. No serious illness arising from these vaccinations in the Dartford/Northfleet area came to our knowledge. Certainly there was no death from vaccination.

In England and Wales the vaccinations numbered between 7 and 10 million and attributed directly or indirectly thereto were 100 serious illnesses and 16 deaths.

The decision not to open a clinic for community vaccination might have been justifiable on the grounds that the motive might have been mistakenly interpreted by the public as an assessment that smallpox was out of control.

In regard to the management of the infection however the decision warrants discussion. The absence of further smallpox cases in this area might be interpreted as indicating that the decision was correct, vaccination facilities being thus shown to have been unnecessary. Alternatively, it might be said that the absence of further cases was due to the meeting of a public demand for vaccination by family, hospital and factory doctors.

Elsewhere, in South Wales, public vaccination facilities such as were asked for here might have prevented the spread of smallpox had they been made more available earlier.

Vaccination against smallpox consists of the insertion of a living virus into the skin to cause a mild infection which in certain limited circumstances can be contageous. The risks of this infection are of the same order as those of crossing the street. About 20 cases of serious illness and about 2 deaths result from every million vaccinations.

Every normal person in the community has the choice between having this infection with its minute risk or having the usually but not always minute risks of smallpox. The risks of smallpox, usually minute because the disease has to be imported can only be known with precision by those engaged in the control of the disease who have knowledge of the local and world position. As the smallpox risks at any one time in a locality are only known to the authorities the latter should provide a local assessment capable of giving guidance to the public who could then exercise their vaccination choice with wisdom.

It would clarify matters if the question of public health were separated from that of personal health in the management of smallpox.

Public health is safeguarded by the isolation of the cases by vaccinating and observing the contacts, by energetic enquiry and by good fortune so that the disease is brought under control and eradicated. The task is completed within about 4 months at the most but in the process there might in this country be about 20 cases and 5 deaths.

However certain ultimate public health control may be the chances of being one of these smallpox cases is to the individual a matter of personal health. If the outbreak is in a population of 100,000 the individual has either a 200 in a million chance of serious illhealth from smallpox or a 20 in a million chance of illhealth from vaccination disease. Let him blend his own circumstances with these probabilities and make his choice.

In regard to infant vaccination the parents are provided with guidance and the choice of whether or not the infant is to be vaccinated is largely left to the parent. The choice is not entirely in the hands of the parent as, except in unusual circumstances, a doctor would not vaccinate if contra-indications were evident. If the choice can be left to the public in regard to infant vaccination it is not surprising if they expect the choice to be left to them in event of an outbreak and the necessary guidance to be given.

The Press could not sensationalise the situation if guidance were given in the form of the figures of the probabilities of the position and if we regard the Press and Public as rational the choice of whether or not to be vaccinated could be left to the individual.

In such circumstances to provide vaccination facilities and guidance would be a feature of good public relations.

For the assessment of risks of vaccination and revaccination records of the vaccination of all age groups are required so that the illness rate per million vaccinations and revaccinations can be calculated for each group. For certain adults vaccination records have not in the past been asked for and this gap in recording required filling. However after 1962 owing to the burden on public funds, more apparent than real, caused by payment for records of vaccination in the 1962 outbreak, the age groups for which records would be required in the future were limited still further. This re-arrangement we opposed but our opposition was unsuccessful. Records will therefore be less, not more, complete in the future.

Bacterial Infections.

RESPIRATORY TUBERCULOSIS

The 21 cases of respiratory tuberculosis notified in the six years 1958-63 (Table VIII) give a rate of 39 per 100,000. The 1959-63 average rates for Kent and England and Wales were 37 and 43 respectively.

The 4 deaths of Swanscombe 1958-63 represent a rate of .074 per 1000 population per year. The 1963 rates for Kent and England and Wales were .069 and .055 respectively.

For the 4 years 1960-63 the numbers on the register have been about stationary. The numbers on the register for the previous years were also about stationary but at a much higher figure owing to the need for the register to be revised which task was done in 1960 when 80 names were removed.

At the end of 1963 the number on the register per 1000 population was

Dartford Borough	9.4
Northfleet U.D.	7.7
Swanscombe U.D.	6.9
Dartford R.D.	8.6
Kent A.C.	9.2 (inc. non resp.)

These rates are crude. Dartford Borough for instance has some 2000 persons aged 55 upwards in Bexley Hospital. Nevertheless that Swanscombe has the lowest figure is not without interest having regard to its social structure.

NON.RESP. TUBERCULOSIS

In Swanscombe U.D. only 3 cases have been notified in the years 1958-63 and in 1963 there were only 4 persons on the register. The notification rate 1958-63 is 6 per 100,000, the average rates for 1958-63 for Kent and England and Wales were 6 and 6 respectively.

DIPHTHERIA

The late Dr. Ockwell introduced vaccination against diphtheria around 1932 i.e. in the early years when vaccine against the disease was available. Since the early 1940's the vaccine has been in use on a national scale.

In the early 30's the response to vaccine was around 150 children of all ages each year. In 1963 the response was 96% of infants being vaccinated in the first year of life (table IX).

Diphtheria incidence since 1932 has been as follows

	Cases	Deaths		Cases	Deaths
1932	5	-	1939	2	-
1933	15	3	1940	-	-
1934	10	-	1941	6	1
1935	10	1	1942-45	-	-
1936	3	-	1946	2	-
1937	9	-	1947-63	-	-
1938	3	-			

DYSENTERY

At the end of January 1963 alimentary upset occurred among certain children in this and the neighbouring district (table VII). Many of the affected children attended one County Primary School the outside water closets of which had become frozen in the exceptionally cold weather. The maximum number absent was 61 out of 246 pupils. Specimens from the affected households showed the infection to be that of Sh. Sonnei the organism of mild dysentery. Several members in some households were found infected.

Specimens from food handlers at the school were negative.

To prevent further spread of infection increased emphasis was placed on hand cleanliness at the school, bowls of disinfectant were provided for hand immersion, children with symptoms of dysentery were excluded until 2 days after full recovery, surfaces open to pollution were disinfected, advice on prevention of spread in the home was circulated. Work was initiated to provide a permanent remedy for the water closets and future protection from freezing.

One infant in the household of one of the school children became ill enough to cause apprehension.

The Council considered the school should be closed. A family doctor had a similar view. I advised that the balance of advantage indicated that the school should be kept open. The School Medical Officer agreed with the latter view.

The outbreak came to an end and although the keeping open of the school was well justified a refinement that might be worth-while for future occasions might be the exclusion of those children from school who have an infant in their home.

ENVIRONMENTAL CONDITIONS

HOUSING

Swanscombe is industrial and wholesome but is not the most elegant of towns. Nevertheless in regard to the essentials of domestic housing the differences from other districts are not great. Households at the 1961 Census gave the following pattern:

	In unfit houses approx. local estimates	Without exclusive use of all amenities.	Persons per room.	Council tenants.	Owner-occupiers.
Swanscombe U.D.	1.0%	35%	0.68	34%	30%
Northfleet U.D.	0.5%	32%	0.66	26%	46%
Dartford M.B.	0.5%	25%	0.67	26%	51%
Dartford R.D.	0.5%	20%	0.68	24%	54%
Kent A.C.	?	26%	0.63	19%	52%

Glossary

Unfit houses: The type that history has associated with preventable disease.

Amenities: Hot and cold water, fixed bath, W.C. in or attached to the building. Features of labour saving and comfort.

Persons per room. Related to the probability or otherwise of the spread of respiratory infections.

Council tenants: Related partially to need and therefore perhaps to shortage of health.

Owner-occupiers: Related partially to borrowing power and therefore perhaps to adequacy of health.

THE POPULATION TO BE HOUSED

That our population growth is largely one of self-expansion is shown by the following:

(a) The slow increase of the census populations:

1901	6975	)
1911	7693	) as a parish.
1921	8494	)
1931	8543	)
1951	8433	) as an urban district.
1961	8775	)

(b) The population is now what could be expected from the average number of births and the average expectation of life at birth over the last two generations, i.e. 150 x 60 = 9,000.

(c) Our yearly increase in population is now that of the natural increase i.e. 6%. (excess of births over deaths per thousand population).

(d) Our intercensus rates of increase have been akin to those of Eng. and Wales on the population of which internal migration has no influence.

NUMBER OF DWELLINGS NEEDED

If population growth is to continue to be a product of self-expansion our housing needs can be roughly estimated for the next decade as follows:

I. Immediate need.

(a) The 1961 census showed that 45 households were sharing accommodation and that they were occupying 21 dwellings. To relieve this sharing 24 dwellings are required.

(b) The definition of "household" for census purposes obscures much of the sharing of accommodation that housing authorities hope to relieve. For census purposes a household comprises a group of persons living together and benefiting from common house-keeping. Thus married couples living with close relatives cannot have been enumerated as separate households. An inquiry to the R.G. reveals that a 10% analysis shows that about 60 households consisted of two or more families. Thus to relieve this sharing of accommodation about 30 dwellings would be required.

II. Recurrent need.

(a) Dwellings are required after marriage or on attaining independence and are vacated after death. The number we require each year is half the annual number of births less half the number of annual deaths. When the local population has no longer a natural increase as will I imagine eventually occur either through adversity or control this will be 0. In recent years however it has been about 140/2 less 80/2 = 30 per year.

(b) If a house has an expectation of life of 100 years when built then 3000 houses will require replacing at the rate of 30 a year.

Thus in 1961 the need of Swanscombe population was about:

Immediate, 24 + 30 = 50 houses.

Recurrent, 30 to 60 new houses annually

0 to 30 new sites annually.

TREND OF HOUSING PROGRESS

Although in Swanscombe a greater proportion of new houses were provided by Council enterprise the rate of new houses becoming available 1953-63 was much less than with the neighbouring districts (Appendix I).

Nevertheless the intercensal decrease in the proportion of those enumerated as sharing dwellings was greater than any of the neighbouring districts.

This is in harmony with the view that the houses that have become available have been largely used for the easing of Swanscombe's own need and that the population here is growing by self-expansion.

The 513 houses becoming available in the 11 years 1953-63 represent a rate of provision not so very much below that of our theoretical needs for 1961 calculated on a basis of self expansion.

WATER

The dwellings of Swanscombe receive their water from the Metropolitan Water Board and this supply presents no problems relating to the possibilities of pollution. The bacteriological quality of the water is consistently good (Appendix II). The mineral constituents of water are attracting more interest now and there are three features here for comment namely fluorides, nitrates and calcium compounds (hardness).

The water here is deficient in fluoride having only 15 per cent of the amount required to reduce dental decay by half.

In regard to nitrates the content need only be trebled to make us cautious regarding infant feeds reconstituted with water.

Our water is hard. Hardness has hitherto been considered a domestic nuisance though no doubt this is of less importance since the introduction of detergents. Hard waters elsewhere have become associated statistically with a low incidence of heart degeneration. The hardness of a water may contribute in a minute way to the protection of the body against strontium 90, as the more calcium there is in the water the less strontium will be taken up by the body.

DRAINAGE

The analyses of the effluent from the sewage works in 1963 showed an improved quality no doubt due to the improvements that had been made to the works (Appendix III).

FOOD

The years 1958-63 were uneventful (Appendix IV).

RADIO ACTIVITY

There is a need for the peacetime problems of radio activity to be kept in true perspective and for there to be familiarity with the language of the subject which should enable it to be amenable to discussion by the many of us not hitherto concerned with this feature of our environment. Towards this end rather than for the information it contains Appendix VII has been provided.

As a result of test explosions in the Arctic in 1958 and 1961 and both in the Arctic and Pacific in 1962 fall out of radio-active material was in our minds during the period under review.

During these years the Agricultural Research Council Radio-biological Laboratory has kept the position under observation in regard to the food of the country as a whole while in Kent the County Analyst has kept local food supplies under observation. Iodine 131 and strontium 90 are the two radio-active materials which require most attention.

The radio-activity of iodine 131 is only short lived and this isotope is therefore not a great food problem except at the time of the fall out for infants dependent on milk. The Medical Research Council recommended that the dose should not exceed 130 picocuries per litre for a year i.e. 6760 pc weeks/litre.

The radioactivity of strontium 90 decays only slowly merely half being lost in 30 years. Chemically it is similar to calcium and consequently strontium is deposited in our bones where it is an

intimate influence on blood forming tissue. If in excessive amounts white blood cells may get out of hand and multiply too rapidly. As the body has difficulty in distinguishing between strontium 90 and calcium it is not so much the amount of strontium 90 in the diet that matters as the ratio of strontium 90 to calcium. The unit for measurement is the picocurie (pc or pCi) of strontium 90 per gramme of calcium - the "strontium unit". To be on the safe side the general population should have no more than 67 strontium units in their bones and to ensure this there should be caution should the diet average more than 130 strontium units over a year.

The limits for Iodine 131 and Strontium 90 are arbitrary. Their relationship with undesirable risk has been likened to guidance given by speed limits on certain roads.

Research Council Survey

The survey of Iodine 131 began in U.K. in September 1961 when weapon tests were resumed the fall out from which mainly affected the Northern hemisphere. In the Autumns of 1961 and of 1962 the country-wide mean values rose to maxima of about 175 pc per litre. But on each occasion the value dropped within a few weeks to amounts too small for measurement and I 131 has not since reappeared. In Scotland the value reached 370 pc per litre, in Kent 136. Nevertheless over any period of 12 months the country-wide mean did not exceed 15% of the MRC maximum acceptable dose. Incidentally should I 131 reach undesirable levels the cautionary measure is for the liquid milk consumed by infants to be replaced with dried milk that has been stored for several weeks.

Sr 90 is largely deposited by rain and measurements of Sr 90 contained in rain provide an idea of the trend of dietary contamination. The annual U.K. deposits 1958-63 in mc/km^2 were approximately 5, 6, 2, 2, 9, 21. The deposit accumulated from rain corrected for radioactive decay at the end of these years was 14, 20, 21, 23, 32, 51. Sr 90 in the drinking water from the River Thames 1958-63 in pc/litre was: Oxford 0.2, 0.3, 0.2, 0.1, 0.4, 0.8, London 0.4, 0.6, 0.6, 0.3, 0.4, 0.9.

In U.K. the annual means of Strontium units in milk 1958-63 were approximately 8, 10, 7, 6, 12, 26. Special sites with exceptional rainfall and herbage conditions were selected in an endeavour to identify the highest levels of contamination possible. At site 2 in Cumberland the means for the years 1961-62-63 were 43, 76 and 143.

The figures above are taken mainly from Agricultural Research Council Radiobiological Laboratory reports and are provided to show the trend in the years 1958-63. Subsequent years showed a downward trend.

THE CLEAN AIR MOVEMENT

Those concerned with only the local affairs of clean air may not be aware of the expanse of the communal effort in which they have a part. Widespread local interest at the periphery has promoted the creation of national resources at the centre which in turn have enhanced local demand at the periphery. The result is an expanding movement in which local and national endeavours are mutually complementary and which contain a wholesome blend of public, academic and enlightened self-interest.

Nevertheless there are imperfections examples of which are: imbalance between the large effort for the gathering of measurements and the small effort for their interpretation; the co-ordination work required by a partnership between local democracy and central technocracy; the evolution of the Joint Abatement Committee into a pressure group rather than a study group; the attention given by isolated Committees to isolated readings.

However as a whole the movement is elegant and engaging. Legislation and co-operation is reducing domestic and industrial carbonaceous smoke and dust to a minimum and in addition domestic expediency is increasing the use of smokeless fuels. Residential areas are clearing while certain industrial units are dispersing their emissions at heights from chimneys that are both tall and stately. The cottage is entering into partnership with the generating station.

The smoke content of London air is half what it was ten years ago. Yet although the overall expenditure on clean air is now substantial we are only half way through the easier task of removing suspended blackness. The harder problem is presented by the increasing emissions of invisible gases and for these such success as can be recorded is that their ground level concentration has been kept from increasing.

As is essential now more than ever, the measures being initiated are being infused with increasing study and thought. Investigations and studies have been and are being provided by national bodies which include government research departments, the former L.C.C., certain universities and certain industries. Those who make use of the refined findings of these bodies include industry, local authorities, and executive departments of ministries. Conversely the research bodies base a lot of their work on the endeavours of the executive workers at the periphery. Those concerned in the work number thousands and include statisticians, administrators, chemists, physicists, engineers, physicians and meteorologists.

Progress in this country has been accompanied or followed by similar endeavours on the continent where post-war industrial expansion has created similar problems. Interest in clean air has spread throughout the world and international co-operation and research is now provided for by the World Health Organization.

Relation to Health

On the blood tissue the action of for example carbon monoxide is understood but this pollutant is only rarely in significant concentration. On lung tissue it is not known precisely how the constituents of polluted urban air assert their adverse effect. Pollution aggravates long standing chest disease and can be the final stress but as a cause of chest disease it is but one of several likely factors. Smoke abatement is strived for because we have technical ability to achieve it and because conjecture suggests that carbon is a carrier of injurious agents. Gas abatement is beyond our ability. If improved health is our incentive the proportion of resources devoted to studying the biology of air pollution seems disproportionately small when compared with that devoted to its physical and chemical technology.

Past Incentive

The association of smoke from tobacco with cancer and bronchitis is outstandingly clear yet substantial private expenditure is incurred not on tobacco smoke abatement but on its production. It follows that the incentive for clean air cannot have come from the post-mortem room or from the cancerous or bronchitic lung - pathologists are reticent and number only a few hundred. More likely the incentive for clean air has arisen from the clothes line and blemished washing - housewives are vocal and number numerous millions. Improved amenity rather than improved health has been the likely prime motive in past progress.

The future task

Many of the agents in air pollution suspected of being injurious will remain after smoke-free air has been achieved. How these pollutents will behave in the absence of carbon and how necessary it will be to disperse or prevent them remains to be seen. If they are to be removed - as presumably they should - then the task to provide air which is wholesome will be found more difficult than that to provide air which is clean.

THAMES-SIDE

In terms of atmospheric pollution this Urban District is small in size and it is expedient to observe it as part of a larger area which includes the districts of its neighbours. The area thus contemplated forms a substantial part of the linear extension of the conurbation of London towards the east along the south bank of the Thames. The river and drained marshes provide expansive open space along the northern edge while open country extends from the other boundary to the south. Inside this strip of development are many acres of chalk pits unoccupied by any premises capable of causing pollution and areas of domestic housing of moderate size and density. The industries capable of causing pollution are mainly near the river in large conspicuous units the most prominent being cement works, generating stations and paper mills. The cement works present a special type of problem so that pollution is best considered in two parts:

(i) general pollution.

(ii) dust from cement works.

GENERAL POLLUTION

Day-to-day pollution

One is tempted to surmise that the larger a conurbation the more concentrated will be the air pollution inside it. This is so but to a less degree than one might imagine. As one proceeds inwards from the periphery of a conurbation the pollution increases for about a quarter of a mile and then the level becomes constant only to decline when one comes to a park or a smoke control area, rising again after leaving such an area. The reason for this is that pollution is dispersed upwards by convection and turbulence and thus the emissions on which its concentration depends are largely in the immediate vicinity.

To us this means that although the Thames-side urban development is narrow with open country to the north and south, smoke control areas here should nevertheless provide a useful lessening of pollution.

In regard to industry the high chimneys normally give good dispersal to their flue gases while efficient combustion reduces smoke to amounts which are small in comparison with those produced by domestic premises. Except where raw materials unavoidably escape large industrial units no longer present a smoke problem.

Fogs

In times of fog the behaviour of pollution is different. Upward dispersion of domestic pollution cannot occur and sideways spread is a consequence. Inside a conurbation this means that each district is affected by its neighbours.

In Thames-side however we reap advantage from the open areas on our borders and the pollution we incur is mainly that which we ourselves create. We should therefore gain advantage from our own smoke control.

In regard to industry the tallest of our chimneys penetrate the top of most fogs. Their effluent gases thereby escape and we reap advantage from the disposition of our industries in large units.

Measurements

The nature of pollution in the urban air is complex and while an association of pollution with ill-health is known the precise way by which our health is damaged is not yet understood. Certain constituents of air pollution however can be measured for use as indicators of the trend of pollution and large numbers of measurements have been made in recent years and are continuing to be made. Measurements alone will not abate pollution and without thought and study they will be wasteful of effort. Thus teams of experienced specialists are guiding this work on a national and international scale.

However this does not absolve us from studying our own district to apply the knowledge available and ensure that local knowledge and local expenditure is put to its best use. The figures in Appendix VI provide the material for a limited exercise in this study naïve though it may be.

Indicators in use

The indicators used as crude measurements of pollution are:-

Air stain - the concentration of smoke calculated from the darkness of paper that has filtered air daily (micrograms per cubic metre).

Air acidity - mainly SO_2 which bubbled through H_2O_2 records the acid content daily (micrograms per cubic metre).

Precautions

Because particulate matter may pile up in depth air stain calculations have recently been revised. For reasons of expediency the revised smoke calculations are used in Appendix VI only where mentioned. This only affects high concentrations.

The shade of our stains may be affected by the light-coloured dust from cement works yet they are read as if they were made by a standard smoke.

Shade readings were by naked eye before about 1961. Subsequently they were by reflectometer.

Local circumstances peculiar to each gauge affect its readings, e.g., its height, its proximity to emission and the nature of its surroundings. These should be given consideration when comparing the readings of one gauge with another.

The absolute amount of pollutants is dependent on weather as well as emissions. Much SO_2 is from industry and emission therefrom is independent of season. Thus the smoke/SO_2 ratio should rise and fall with domestic pollution and as a guide to this emission be more independent of the weather than absolute quantities. I think a mathematician would be as interested in the ratio of smoke to sulphur dioxide as in the absolute quantities of those indicators.

Indicator discarded

Hitherto an inexpensive means of measuring SO_2 has been the lead dioxide candle but although this gauge primarily measures the SO_2 in the air by sulphate formed, its readings are somewhat influenced by temperature, humidity, air movement and matter other than SO_2. These features are regarded by chemists as conveying inaccuracy and this gauge has now been discarded.

However the blend of circumstances which have been mentioned as sources of chemical inaccuracy might in biological measurement be regarded as useful as such a blend is also likely to influence the effect of pollutants on the human respiratory tract. The gauge was in use to the end of March 1963 and some readings are recorded in our tables.

Thames-side pollution 1958-63

For the purpose of getting our own pollution into perspective our readings for certain winter days and months and for six-monthly periods for years 1958-63 are presented in Appendix VI. Although the comparison with districts unfamiliar to us is a crude exercise the readings of Islington in inner London and Redmires in open country 5 miles west of Sheffield City centre are included for reference.

In all gauges there is a seasonal swing, the winter averages being appreciably greater than those of summer, as one would expect. This increase is also seen in the smoke/SO_2 ratio showing that a contributory cause is an increase of domestic fuel combustion.

In winter Thames-side average pollution is about half that in Islington and about twice that at Redmires. In summer the differences are lessened.

Up to the severe winter of 1963 when pollution levels rose, the trend since 1958 in Islington was downwards but it is not feasible to discern a trend in the Thames-side gauges except perhaps for the Smoke/SO_2 ratio the trend of which was downwards. None of the gauges is in a smoke control area and so the trend in Islington may be a result of spontaneous change of practice in the type of fuels used.

In a normal winter the Thames-side highest daily smoke concentrations seem higher than those of Islington.

At the Thames-side as elsewhere both pollution and bronchitis deaths rise in winter and fall in summer and there may - or may not be - an association between pollution and deaths.

Having gained an idea of past measurements we can consider the features of 1962 and 1963.

Fog 1962.

London

London with its large population and abundant pollution has provided meaningful statistical studies on the effects of urban fog and a useful way of discussing our own limited fog and winter records is to see how they fit into the more comprehensive information of London as a whole.

By its dense population London has an additional gauge, namely the death register. "The level of pollution (in London) begins to exert a marked effect upon mortality when the daily concentration reaches 2000 micrograms of black suspended matter and 1150 micrograms of acidic gases per cubic metre of air..." (Scott Med. Off. 16.10.59).

From December 3rd - 7th 1962 fog extended to a height of 300-400 feet and it was exceptionally cold the minimum temperature being -6°C (21°F). The fog pollution map of London was like a target with the centre north of the river providing a black bull's eye of over 4000 micrograms per cubic metre smoke and SO_2 and the periphery of Greater London providing an outer ring of 1000-2000 $\mu g/m^3$.

In Greater London increase in sickness was shown by a 50% rise in the weekly figures for sickness benefit claims and by an acceleration of 700 deaths.

The above was the worst fog in London since that of 1952. However the latter lasted one day longer, smoke rose to 7000 $\mu g/M^3$ and SO_2 to 4000. In Greater London there were 4000 accelerated deaths.

It is tempting but premature to attribute the reduction in mortality in the 1962 fog to reduced smoke pollution.

Thames-side

The readings of the Councils' Public Health Inspectors which give maxima of between 1000 and 2000 micrograms per cubic metre fit into the 1962 fog pollution map of London, the peripheral figures of which are in this range, (appendix VI). The absolute amounts show the fog to be at its worst before the morning of the 5th. Up to this time the smoke/SO_2 ratio had been high but then the ratio fell and I surmise that this was because our tallest industrial chimneys were then being capped by the fog.

New claims for sickness benefit were as follows (Sevenoaks being suburban is given for comparison):

Week ending	Dartford.	Gravesend	Sevenoaks	Greater London
December 4	303	240	99	?
December 11	377	333	105	?
December 18	230	246	104	?
% increase	25%	37%	6%	50%

The Thames-side percentage increase in claims is to the Greater London increase in claims as the Thames-side increase in pollution is to the London increase in pollution.

The accelerated deaths in London amounted to about 1 in 10,000 population. At Thameside such a rate would accelerate so few deaths that they would be hardly discernible.

To summarise: the effect of the fog of 1962 in Thames-side was similar to that in London, any difference being mainly one of degree.

Winter 1962/63

The winter 1962/63 was exceptional. After the fog described above there was on December 22 a marked fall in temperature and a period of exceptionally cold weather ensued which lasted until March 4. At Kew Observatory it was the coldest January since 1838 and in St. James Park London the mean January temperature of -0.8°C was 5.4°C below normal for the month. (C.M.O's Report for 1963). Increased cold means increased pollution.

London January 1963

In London the daily mortality figures began to rise on December 26 and continued to rise to a maximum on January 23rd-28th. Superimposed on the mortality curve are a number of small peaks many of which correspond to days of high atmospheric pollution. One period of heavy atmospheric pollution was January 23rd-28th when the mean daily figures from seven London sites rose to 820 micrograms per cubic metre smoke and 1230 micrograms per cubic metre SO_2.

Thames-side January 1963

The pollution figures for certain Thames-side sites are given in Appendix VI. The maximum smoke was at Northfleet with 691 micrograms per cubic metre on January 24th. The maximum SO_2 was at Dartford with 949 $\mu g/m^3$ on January 26th.

DUST FROM CEMENT WORKS

In a memorandum of 1956 to the Joint Committee for the Abatement of Atmospheric Pollution and in a report of 1962 to this Council this feature of our environment was the subject of a review which included the history of the nuisance, the methods of manufacture of cement, the methods of dust prevention, the nature of the dust and its relation to the health of the local population. The review that now follows concerns the further evolution of the position to the end of 1963.

The Cement Works

In 1959 one of the 4 kilns at Bevans Works, Northfleet was modified to use the semi-dry process and a new electrostatic precipitator, after preliminary difficulties, was provided. In 1960 two other new precipitators for two other kilns at Bevans were put into use and also a new 350' chimney. In 1961 the new 400' chimney at Swanscombe Works was completed and in the following year the flue system came into operation to connect all normal kilns to that chimney. In 1962 a new precipitator was provided for the Metropolitan Works across the river and six small kilns on only chain arrestment were closed down.

At the time of excessive dust nuisance in 1962 the production from Thames-side was reduced.

In 1963 the 4th kiln at Bevans Works was provided with a precipitator, a second new precipitator was provided for the Metropolitan Works and no kiln on Thames-side was allowed to work without an external means of dust arrestment even for brief periods. At Thames-side by the end of that year £2 million had been spent on dust arrestment since 1945 and the "overall average" dust slip had come down to 0.4 grains per cu. ft. in the emitted flue gases and the target set was 0.2 grains per cu. ft. which is 0.2% of clinker produced.

Trouble from clay

In 1961 with the exception of Bevans the Thames-side works in Kent had been obtaining estuarine clay from Cliffe marshes, which clay has a high silica and alkali content. As more clay was extracted the more it deteriorated in quality in this respect and the high alkali content resulted in a greater dust burden on the precipitators with the dust failing to dislodge from the collecting electrodes on rapping. Thus arrestment of dust was seriously impaired. The prospect of trouble became known to those concerned with management and administration and in 1961 steps were taken to obtain eocine clay from Essex, which clay has not the difficult properties of the estuarine clay.

Unfortunately before arrangements which included seeking planning permission were completed, weather and precipitator behaviour combined in 1962 to create periods of exceptional dust nuisance on Thames-side, The accompanying public indignation action and remedy are outlined below.

By the end of 1963 all except the Swanscombe Works were on eocine clay and arrangements for these works to obtain this clay subsequently materialised. Also the districts of the Alkali etc. Works Act Inspectors were reduced in size so that the latter could give greater time to Thames-side problems. The reports from the Chief Alkali etc. Works Inspector and from the Industry are informative on these matters.

Administrative action

In 1959 an approach was made from the Joint Committee to the Ministry for a public hearing into the nuisance caused by dust from cement works but the Minister was disposed to regard the matter as one of public relations in which the industry should take its part.

In 1960 a deputation from the Joint Committee met their Members of Parliament to discuss the assistance the latter could give towards obtaining information on the efficiency of dust arrestment plant, on new processes of manufacture and on the means by which the Inspectorate were able to carry out their duties.

In 1962 a deputation from the Joint Committee waited on the Minister of Housing and Local Government. The deputation expressed disappointment at the lack of improvement in the dust nuisance position and submitted a detailed statement. The Minister emphasized that he regarded the matter as seriously as did the Joint Committee. He placed importance on the obtaining of eocine clay from Essex.

In November 1962 the Member of Parliament for Dartford raised several questions in the House of Commons about the nuisance.

In 1963 a panel of Town Clerks and Clerks of Councils came into being to report on what legal action could be taken in the event of further serious dust deposit.

In 1963 the Member of Parliament pressed the Ministry of Housing and Local Government for the dust/clinker ratio to be supplied for individual works. The dust emitted as a percentage of clinker produced in a given time is used as an index of the ability of a plant to avoid dust nuisance. The Minister however would only agree to make available the annual average figure for Thames-side.

Deposit Gauge Readings

The Graphs in Appendix VI give the trend lines of deposit gauge readings from 1954 up to March 1962 when calculations were suspended for a review by the County Analyst of the method of calculating the percentage of dust from cement works in each deposit collected.

The half-yearly figures for summed total deposits of gauges both sides of the works area remained almost level along the years. The dust from cement works showed a rising trend from 1958 onwards while dust from other sources showed a downward trend from that year. The latter is no doubt due to the change of fuel from coal to oil by industry including that of cement manufacture.

The trend lines of the individual gauges near the cement works showed no spectacular trend changes through being near the works but from 1959 onwards the Northfleet and Swanscombe gauges showed periodic winter increases in dust from other sources. I imagine this may be associated with the increased use of fuel in winter by coal-fired generating stations.

As weather is influential in determining the amount of dust deposited in the gauges the percentages of dust from cement works as related to dust from other sources might be used as a guide to the trend of emissions from the works. Their trend from 1959 onwards is markedly upward but they are not reproduced here as their reliability as a guide is uncertain.

For the year 1962 when the dust nuisance was so exceptional the routine readings (i.e. without estimates of dust from cement works) of deposit gauges near the cement works were:

Tons per Square Mile 1962

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Dartford Bow Arrow												
Total dissolved	18	11	18	23	13	13	15	11	7	27	16	16
Total undissolved	15	11	19	34	18	29	22	14	5	44	5	8
Total solids	33	21	38	57	31	42	37	24	12	71	21	24
Dartford Horns Cross												
Total dissolved	29	19	36	30	32	16	21	11	14	37	34	39
Total undissolved	49	23	57	70	59	23	38	19	15	53	36	14
Total solids	77	42	93	100	91	39	59	30	30	90	70	53
Swanscombe												
Total dissolved	21	19	20	19	23	12	20	14	13	25	Not	Not
Total undissolved	15	31	26	20	33	14	19	12	13	32	avail-	avail-
Total solids	36	50	46	39	57	25	39	26	26	57	able	able
Northfleet												
Total dissolved	16	17	23	16	14	10	16	11	13	26	19	28
Total undissolved	21	22	25	14	13	20	16	16	16	27	13	24
Total solids	37	39	49	30	27	30	32	27	28	53	32	53

The nature of the dust

The Chief Inspector Alkali etc. Works Act has repeatedly emphasized that in spells of dry windless weather even with the improvements of recent years and those yet to come some dust nuisance will be inevitable at Thames-side. It is prudent therefore to study the nature of the dust and search for clues to the future significance of this nuisance.

The dust consists mainly of the raw materials of cement namely chalk and clay. It also has a small proportion of lime and gypsum created by the furnace with some coal ash if the kilns are coal fired. The larger dust particles can agglomerate to fall as blobs. If they behave like particles of other dusts the larger particles will be brought down by rain as well as gravity and rain will thus leave the finer particles suspended. The specific gravity is about 2.5

Precise information on the particle distribution of our particular dust is not in our possession. From such information as is available here the dust in our air can be assumed to have a pattern akin to that of dust in the flues of cement works and of this the following is an illustration:

Particle size in 1/1000 mm (/u) diameter.	60/u	30/u	20/u	10/u	5/u	2/u
% by weight under this particle size	95%	80%	60%	50%	30%	20%
Free falling speed (cms per sec)	10	3	1	0.3	0.08	0.01
Minutes to fall 200 metres	33	111	333	1110	4167	33333
Mileage to reach ground in 2 m.p.h. wind	1	4	11	37	139	1111

Deposited dust

In future the emission of dust from any cement works at Thames-side will be no more than 0.2% of cement clinker produced by the kilns. As $4\frac{1}{2}$ million tons of cement are produced annually this means that 9000 tons of dust a year will be emitted from the Thames-side chimneys i.e. 750 tons per month. If 40% of this is deposited owing to windless weather in the cement producing district which covers about 18 sq. miles the result will be a deposit, as measured by gauges, of about 12 tons per sq. mile in three weeks which is the longest such weather is likely to last. Thus the figure for an exceptional month of dry calm weather is likely to be around 15 tons per sq. mile. In the past the deposits of dust from cement works for such exceptional months in the cement production area have averaged around 40 tons per sq. mile.

Suspended dust

Improved efficiency of dust arrestment will reduce the amount of the larger particles emitted but the amount of the finer particles will be little changed and form a greater portion of the dust emission than they have in the past. These small particles are air-suspended and have little influence on deposit gauge measurements. The following features of the Thames-side area suggest that this suspended dust is present in significant amounts:

(a) Haze. With light air movement in calm weather a somewhat opaque haze cloud can be seen emanating from each cement works chimney and separating from the steam plume. Where it reaches the ground it may envelop numerous acres of housing development. The obscuration caused by the cloud indicates that it is composed of particles at the small end of the size distribution and that the particles remain suspended.

(b) Impingement. In calm dry weather when nuisance from the dust is exceptionally severe the readings of the deposit gauges while reflecting the nuisance do not provide readings which are as exceptional as might be expected. The presumption is that a substantial part of the

nuisance is caused by suspended dust of small particle size impinging on vertical surfaces but not falling into deposit gauges.

(c) Smoke stain. In the calibration of smoke stains carried out by D.S.I.R. the amounts of smoke material on filter paper to provide dark stains was assessed. To produce a stain of the same darkness Greenhithe smoke required twice the amount of that required by Glasgow smoke. This suggests that the quantity of dust from cement works suspended in the air is of the same order amount and particle size as that of the carbonaceous smoke being measured.

(d) Certain physical measurements of falling speed suggest that a greater percentage of dust from cement works will remain suspended in the air than the above table indicates.

(e) The occasion when this dust is most significant is when there is fog and this is a situation which makes a simple calculation meaningful.

A bad fog lasts about five days. About 750 tons of dust are emitted in a month (see above) = 125 tons in 5 days. About 20% of this dust is suspended in air = 25 tons = 25×10^3 kilograms = 25×10^6 grams= 25×10^{12} µg.

The cement works area measures about 50 sq. kilometres. The fog is 0.2 kilometres high and so the box of air into which the dust is emitted is 50 x 0.2 cubic kilometres i.e. 10 cubic kilometres = 10×10^9 cubic metres = 10^{10} cubic metres.

∴ the concentration after five days of fog is $\frac{25 \times 10^{12}}{10^{10}}$

= 2500 µg per cubic metre air.

This is of the same order as the concentration of smoke and SO_2 and thus if the suspended dust has a capacity for good or ill it appears that the concentration should be adequate for it to assert its effect. It seems that in the cement districts there is roughly one microgram of suspended dust from cement works for every microgram of carbonaceous smoke or SO_2.

(f) Counts of suspended dust particles in the vicinity of a cement works in Italy emitting 100 tons of dust per month were reported as:

	per litre	particles per m^3
0.8 kilometres upwind of the works	17000	$= 17 \times 10^6$
0.1 " downwind " " "	500000	$=500 \times 10^6$
2.0 " " " " "	75000	$= 75 \times 10^6$

If the particles have a mass median diameter of 2 µ and if the S.G. = 2.5 the weight of 1000 particles is presumably .02 µg. Hence the weight of suspended dust per m^3 of particle "size 2 µ" is as follows:

0.8 kilometres upwind	$= 17 \times 10^3 \times .02 =$	340 µg.
0.1 " downwind	$= 500 \times 10^3 \times .02 =$	10000 µg.
2.0 " " "	$= 75 \times 10^3 \times .02 =$	1500 µg.

Thus although we have no precise statement on particle size it seems justifiable to conclude that in the vicinity of cement works the concentration of suspended dust from those works is of the same order by weight as is particulate matter from fuel combustion in town air. This is in harmony with the previous calculation.

Health

The effect of this dust on the health of the local community was discussed so far as was practicable in the last review. There is the following to add.

In 1962 towards the end of the period 4th-24th October, (i.e. the three weeks of exceptional dust nuisance) enquiries were sent to local doctors asking if there were an increase or otherwise in nose and throat complaints. Of the replies received 23 thought there was no such increase, 15 thought there was an increase and 6 thought a controlled survey was necessary before an answer could be provided.

For the years 1959-61 the numbers of deaths from bronchitis occurring each <u>week</u> in each local authority from Bexley to Chatham were obtained from the Registrar General. The population from which these deaths were drawn numbered $\frac{1}{2}$ million. The total deaths for each week were then plotted with the averages for each week of the smoke and SO_2 concentrations. For purposes of study it was not feasible to separate the weekly deaths of those resident in cement producing districts from those resident in the neighbouring districts because the deaths were assigned to the district of occurrence.

On the graph so formed the pollution curves ran parallel with the curve of bronchitis deaths and for both there was a rise in winter and a fall in summer. This is the picture obtained generally and it only informed us that in N.W. Kent the bronchitis/pollution relationship was the same as elsewhere.

It was possible for the years 1957-60 to separate the cement producing districts from neighbouring districts for plotting certain monthly pollution readings and the bronchitis deaths recorded each <u>month</u>. This was because the monthly deaths were assigned to area of residence and were sufficiently numerous to be studied in two groups. For each year there was plotted the monthly readings of acidity of the deposit gauges, the monthly SO_2 readings of the lead dioxide gauges and the monthly bronchitis deaths. As the pollution increased so did the bronchitis deaths for both the cement producing districts and the neighbouring districts. Both pollution and deaths rose in winter and fell in summer.

The lead dioxide gauge readings and acidity readings were consistently less in the cement producing districts than in the neighbouring districts.

These graphs are not included in this report.

Difficulties of inquiry

The difficulties of delving into this subject with statistical methods are many. The local population is not large enough to make easily perceptible any changes in mortality that the dust pollution might cause. Newcomers need to be separated from old residents. Age specific death rates and standardised mortality ratios require assistance from the Registrar General.

Sickness records which might be enlightening are not easy to arrange or interpret and are time consuming for everyone concerned. Smoking habits have to be assessed so that their influence can be allowed for. There may be need to compare our records here with records elsewhere of a population in similar circumstances except for dust nuisance.

Nevertheless there are in the area general hospitals, long-stay hospitals, residential institutions and schools all with medical records which together with those of general practitioners might provide raw material from which new facts could be squeezed.

Organizations made aware of our dust

The relationship of this dust to health has been examined so far as is locally practicable and a working assumption has been made that the dust seems inert and has no direct effect on the health of the local population. With this provisional assessment there has been little incentive to advance research on sound technical lines and it has not been feasible to request Local Authorities to support such work financially nor to ask academic organizations to undertake such research. So what has been done has been to try to catch the attention of such organizations in the hope that they may have their own incentive for research initiative. Each organization has shown interest but this has not in any instance gathered sufficient momentum to initiate an erudite enquiry.

The following have been made aware of our dusty environment:

The General Register Office. The R.G. supplied standardized mortality ratios of cancer of the lung of certain Thames-side districts.

The London School of Hygiene. The Statistical Research Unit provided guidance regarding the possibilities for a statistical inquiry.

The Medical Research Unit of St. Johns Hospital for Diseases of the Skin. With the help of the cement industry this unit had already made a noteworthy revelation in the origin of cement workers' eczema and were already interested in non-occupational eczema from dust in the cement production area. They had found that hexavalent chromium compounds, to which a few persons are sensitive, were formed in the kilns. Eczema and asthma are related. An extension of their work to a study of the effect of the dust on the local population was prevented by depletion of resources.

The Medical Research Council Air Pollution Research Unit. A physicist interested in the quality of smoke and its relation to measurement by reflectance contemplated at our suggestion installing apparatus in Northfleet for the study of our suspended dust. However the study of

our dust was not necessary for his research and the study has not yet been undertaken.

The Department of Scientific and Industrial Research. The Department measured suspended dust at Greenhithe in the process of calibrating smoke stains for the National Survey of Air Pollution.

The Thames-side Joint Committee. In 1957 the Joint Committee agreed to the formation of a committee of technical officers for the purpose of interpreting the statistics and other matters concerning the dust. This technical committee lasted three meetings.

The Minister of Housing and Local Government. The Minister felt that research was not necessary to demonstrate that the dust was a nuisance.

The Public Health Department of the County Borough of Bolton where an M.R.C. survey on the relation of atmospheric pollution to the health of the population had been initiated. At the time they were approached the survey was only in its initial stages and they were thus not in a position to give guidance.

The Research Committee of the College of General Practitioners. This organization is engaged in a survey elsewhere on the relationship of health to general air pollution. The proposal for a similar survey concerned with our dust pollution seemed to become impracticable when financial implications appeared.

The conclusion appears to be that if a survey on this subject is to be conducted on sound technical lines using approved statistical methods then it will not only have to receive help from outside but will have to contain a substantial element of local initiative.

Is research necessary?

The painstaking year-in-year-out analyses of our deposit gauge contents succeed in distinguishing the months of exceptional dust nuisance i.e. in telling the housewife what she already knows. Moreover if it were to rain twice a week we would hear little about this subject.

A provisional assessment that the dust is harmless is in harmony with views of families long established in the cement producing area. After seeking evidence to incriminate the dust the late Rev. Stanley Morgan eloquently concluded "the church yards were against us." For practical local purposes we can sense the harmlessness of this dust and meticulous research on its effect on health cannot locally be regarded as a firm necessity.

Is research desirable?

The concentration of cement works at Thames-side is the biggest in Europe and its proximity to urban development is unusual. Thus we have a situation here which provides an exceptional opportunity for a study of the relationship of this dust to the health of the local community. Enquiries on its relation to health are received here from home and abroad which make it evident that we are assumed to be able to give guidance to others faced with this problem. It is desirable that we should be in a position to give this guidance.

In the cement production area one Council have organized rehousing from the vicinity of certain cement works on grounds of amenity while private enterprise has used the area nearby for new residential development. Another Council have a redevelopment housing programme in the immediate neighbourhood of another cement works. Thus guidance seems desirable for local planning.

Academic possibilities

On the academic side fanciful possibilities offer scope for intriguing speculation.

General urban air pollution asserts its adverse effect on health seemingly through the complex interaction of (1) the carbonaceous tarry mixture called dark smoke with (2) the mixture of acid gases of which SO_2 is the leader. The change in the blend of pollutants which follows the introduction of (3) alkaline dusts of baked clay and chalk might modify the effect of air pollution on health. If research would show whether or not the dust has this modifying effect a further clue to the way in which pollution injures health would be made available and the information would have social as well as academic value.

Bronchitis death rates in England and Wales have been shown to be correlated with the acidity of the rain collected in deposit gauges. The rain collected in our gauges, as has been mentioned, has no acidity and is alkaline. Thus study of our bronchitis records might be rewarding.

The information before us has always stated that in the arrested dust from our cement works the amount of free silica is negligible. Yet in the samples of deposited dust from the Italian works mentioned above the free silica amounted to 3% to 5%. We do not yet know the precise nature of the dust that is not arrested by the precipitators but escapes to be suspended in the air of the neighbourhood. The nature of the dust can change with particle size.

Trace elements may play a part in the injury caused by pollution to health and the mineral matter of our suspended dust must contain such traces. The hexavalent chromium demonstrated in cement for instance could also be in the effluent dust from the kilns where it has been shown to be created.

Research may not be a firm necessity but nevertheless it is desirable. It would be time consuming and not without cost. A reasonable apportionment of expenditure would be for a quarter to be borne by the local authorities, a quarter by the central government (M.R.C. and/or D.S.I.R.) a quarter by the cement industry and a quarter by a voluntary research organization.

JHH/SM.

TABLE I.

SOCIAL CONDITIONS.

Population Census 1931	8541
" Census 1951	8433
" Census 1961	8775
Number of dwellings 31.3.63	2799
Rateable value 1962/63	£195,820
Sum represented by 1d rate 1962/63	£800

POPULATION. Increase in the population is due to natural increase and immigration, both being related to new houses built.

Year	1958	1959	1960	1961	1962	1963
Est. mid year home population	8,950	8,940	9,010	8,910	9,040	9,110
Increase or decrease on previous year	20	-10	70	-100	+130	+70
Natural increase (excess of births over deaths)	45	23	48	50	62	58
Immigration or emigration	-25	-33	+22	-150	+68	+12
Dwelling) vacated	6	35	6	1	4	2
Houses) built	20	43	93	91	58	38

DOMESTIC DWELLINGS ACCORDING TO RATEABLE VALUE 31.3.60 (Number per thousand)

	Northfleet ‰	Swanscombe ‰	Dartford Borough ‰	Dartford R.D. ‰
Not exceeding £10	11	25	4	21
Exceeding £10 but not over £13	26	108	15	42
" £13 " " " £18	136	171	103	112
" £18 " " " £25	298	616	255	221
" £25 " " " £30	266	58	281	307
" £30 " " " £40	235	14	288	216
" £40 " " " £50	24	5	43	51
" £50 " " " £60	3	2	8	16
" £60 " " " £70	1	1	2	5
" £70 " " " £80	-	-	1	4
" £80 " " " £100	-	-	-	2
" £100	-	-	-	3
	1,000	1,000	1,000	1,000

COMPARABILITY FACTORS. When local crude birth and death rates are multiplied by the area comparability factors they are comparable with the rate for Eng. and Wales or with the adjusted rate for any other area. In recent years the factors for births (governed by the proportion of women aged 18 - 44 years) and for deaths (governed by the proportion of all age groups) have been:

Year	1958	1959	1960	1961	1962	1963
Births	0.93	0.93	0.93	0.93	0.93	0.97
Deaths	1.22	1.23	1.23	1.23	1.23	1.22

1961 CENSUS. Area	Acres	Persons per acre	Persons per room	Percentage of persons at more than $1\frac{1}{2}$ per room
Kent M.Bs & U.D.s	190,925	6.8	0.63	2.9
Swanscombe U.D.	2,142	4.1	0.68	3.9
Wards				
Galley Hill	552	2.6	0.64	3.8
Greenhithe	643	3.9	0.65	1.9
Swanscombe	947	5.1	0.70	4.8

TABLE I. (Continued).

POPULATION . Census 1961. Five year age groups.

Age	Males	Females	Persons
Total	4,357	4,418	8,775
0 - 4	322	321	643
5 - 9	326	308	634
10 - 14	378	417	795
15 - 19	322	276	598
20 - 24	270	305	575
25 - 29	314	247	561
30 - 34	344	313	657
35 - 39	300	322	622
40 - 44	277	273	550
45 - 49	311	291	602
50 - 54	278	288	566
55 - 59	283	287	570
60 - 64	244	244	488
65 - 69	166	195	361
70 - 74	130	136	266
75 - 79	49	101	150
80 - 84	31	65	96
85 - 89	11	18	29
90 - 94	1	9	10
95 and over	-	2	2

SOCIAL CLASS. Occupied and retired males aged 15+

Area.	Proportion per 1,000 total.					
Census 1951.	I.	II.	III.	IV.	V.	Total
Kent U.D.'s & M.B.'s	48	164	550	111	127	1000
Swanscombe U.D.	12	76	472	141	299	1000
Northfleet U.D.	16	94	500	168	222	1000
Dartford M.B.	27	132	560	125	156	1000
Dartford R.D.	30	144	461	204	161	1000

Census 1961.

	Professions Managers	Intermed -iate	Manual	Own Account	Others Inc.Agric.	
Kent U.D. & M.B.	171	226	520	32	51	1000
Swanscombe U.D.	95	92	759	16	40	1002
Northfleet U.D.	100	149	722	15	12	998
Dartford M.B.	116	230	616	20	18	1000
Dartford R.D.	167	197	542	28	67	1001

ILLEGITIMATE BIRTH RATE.

	1959	1960	1961	1962	1963
England & Wales	51	54	59	66	69
Kent A.C.	45	46	49	53	56
Swanscombe U.D.	29	15	37	39	64
Northfleet U.D.	22	44	32	38	38
Dartford B.	37	35	33	40	46
Dartford R.D.	30	30	22	29	30

AGED LIVING ALONE.

Census 1961.

Males aged 65 and over.	Females aged 60 and over.
36.	160.

TABLE I (Continued)

POPULATION OF YOUNG PERSONS.

A guide is necessary to the population in the young age groups in the district in order that we may form an idea from vaccinations done of the proportion who have been given immunity to certain infectious diseases. A rough estimate can be made from the births which have occurred in the district in the relevant years.

Year	Age 31.12.63	Births	Infant deaths (most within 1st month)	Surviving to 1 year	Approximate populations December 1963.
1963	0	156	1	155	
1962	1	154	4	150	Age Dec. 1963
1961	2	138	1	137	0-4 years = 674
1960	3	136	4	132	
1959	4	105	5	100	
1958	5	128	4	124	
1957	6	123	2	121	Age Dec. 1963
1956	7	141	3	138	5-11 years = 896
1955	8	126	2	124	
1954	9	130	5	123	
1953	10	142	3	139	
1952	11	131	4	127	
1951	12	136	5	131	
1950	13	148	4	144	Age Dec. 1963
1949	14	153	2	151	12-15 years = 585
1948	15	161	2	159	
1947	16	200	2	198	
1946	17	170	6	164	Age Dec. 1963
1945	18	113	6	107	16-20 years = 708
1944	19	129	5	124	
1943	20	118	3	115	

Age Dec. 1963 5-15 years = 1481

Population of school children in primary schools, Autumn Term 1963 = 743.

Local estimates also useful:

	Age Dec. 1963	Population
Born 1957-1963	0 - 6 years	919
" 1943-1956	7 - 20 "	1944
" 1943-1963	0 - 20 "	2863
" 1949-1958	5 - 14 "	1322

TABLE II - BIRTHS & DEATHS, 1958 & 1959

	1958			1959		
	M	F	Persons	M	F	Persons
Live Births:						
Legitimate	73	52	125	50	52	102
Illegitimate	3	-	3	2	1	3
	76	52	128	52	53	105
Deaths from all causes:	51	32	83	47	35	82
Deaths from pregnancy, childbirth, abortion:		-	-	-	-	-
Still Births:						
Legitimate	1	-	1	-	1	1
Illegitimate	-	-	-	-	-	-
	1	-	1	-	1	1
Deaths - 0 to 6 days:						
Legitimate	?	?	?	3	-	3
Illegitimate	?	?	?	-	-	-
	?	?	4	3	-	3
Deaths - 7 to 27 days:						
Legitimate	-	-	-	1	-	1
Illegitimate	-	-	-	-	-	-
	-	-	-	1	-	1
Deaths - 28 to 364 days:						
Legitimate	-	-	-	1	-	1
Illegitimate	-	-	-	-	-	-
	-	-	-	1	-	1
Total under 1 year:						
Legitimate	?	?	?	5	-	5
Illegitimate	?	?	?	-	-	-
	?	?	4	5	-	5

Rates per 1,000 Home Population

	Swanscombe U.D.		England & Wales	
	1958	1959	1958	1959
Crude live birth rate	14.3	11.8	16.4	16.5
Live birth rate adjusted by comparability factor	13.3	10.9	16.4	16.5
Crude death rate	9.3	9.2	11.7	11.6
Death rate adjusted by comparability factor	11.4	11.3	11.7	11.6

Rates per 1,000 Live and Still Births

Maternal death rate	0	0	0.43	0.38
Still birth rate	8	9	21.6	21.0
Perinatal death rate (s.bs. & deaths 0 - 6 days)	39	38	35.1	34.2

Rates per 1,000 Live Births

Neonatal death rate (deaths 0 - 27 days)	31	38	16.2	15.8
Infant death rate (deaths 0 - 364 days)	31	48	22.6	22.2

TABLE II - BIRTHS & DEATHS, 1960 & 1961

	1960			1961		
	M	F	Persons	M	F	Persons
Live Births:						
Legitimate	72	62	134	58	75	133
Illegitimate	2	-	2	1	4	5
	74	62	136	59	79	138
Deaths from all causes:	49	39	88	42	46	88
Deaths from pregnancy, childbirth, abortion:		-	-	-	-	-
Still Births:						
Legitimate	4	1	5	2	1	3
Illegitimate	-	-	-	-	-	-
	4	1	5	2	1	3
Deaths - 0 to 6 days:						
Legitimate	2	1	3	-	-	-
Illegitimate	-	-	-	-	-	-
	2	1	3	-	-	-
Deaths - 7 to 27 days:						
Legitimate	-	-	-	-	-	-
Illegitimate	-	-	-	-	-	-
	-	-	-	-	-	-
Deaths - 28 to 364 days:						
Legitimate	1	-	1	-	1	1
Illegitimate	-	-	-	-	-	-
	1	-	1	-	1	1
Total under 1 year:						
Legitimate	3	1	4	-	1	1
Illegitimate	-	-	-	-	-	-
	3	1	4	-	1	1

Rate per 1,000 Home Population

	Swanscombe U.D.		England & Wales	
	1960	1961	1960	1961
Crude live birth rate	15.1	15.5	17.2	17.6
Live birth rate adjusted by comparability factor	14.0	14.4	17.2	17.6
Crude death rate	9.8	9.9	11.5	12.0
Death rate adjusted by comparability factor	12.1	12.2	11.5	12.0

Rates per 1,000 Live and Still Births

Maternal death rate	0	0	0.39	0.33
Still birth rate	35	21	19.8	19.1
Perinatal death rate (S.bs. & deaths 0 - 6 days)	57	21	32.9	32.2

Rates per 1,000 Live Births

Neonatal death rate (deaths 0 - 27 days)	22	0	15.6	15.5
Infant death rate (deaths 0 - 364 days)	29	7	21.9	21.6

TABLE II - BIRTHS & DEATHS, 1962 & 1963

	1962			1963		
	M	F	Persons	M	F	Persons
Live Births:						
Legitimate	77	71	148	79	67	146
Illegitimate	2	4	6	5	5	10
	79	75	154	84	72	156
Deaths from all causes:	46	46	92	51	47	98
Deaths from pregnancy, childbirth, abortion:		-	-		-	-
Still Births:						
Legitimate	2	-	2	1	1	2
Illegitimate	-	-	-	-	-	-
	2	-	2	1	1	2
Deaths - 0 to 6 days:						
Legitimate	2	1	3	-	-	-
Illegitimate	-	-	-	-	-	-
	2	1	3	-	-	-
Deaths - 7 to 27 days:						
Legitimate	-	-	-	-	-	-
Illegitimate	-	-	-	-	-	-
	-	-	-	-	-	-
Deaths - 28 to 364 days:						
Legitimate	-	1	1	-	1	1
Illegitimate	-	-	-	-	-	-
	-	1	1	-	1	1
Total under 1 year:						
Legitimate	2	2	4	-	1	1
Illegitimate	-	-	-	-	-	-
	2	2	4	-	1	1

Rates per 1,000 Home Population

	Swanscombe U.D.		England & Wales	
	1962	1963	1962	1963
Crude live birth rate	17.1	17.1	18.0	18.2
Live birth rate adjusted by comparability factor	15.8	16.6	18.0	18.2
Crude death rate	10.2	10.7	11.9	12.2
Death rate adjusted by comparability factor	12.5	13.1	11.9	12.2
Rates per 1,000 Live and Still Births				
Maternal death rate	0	0	0.35	0.28
Stillbirth rate	13	13	18.1	17.2
Perinatal death rate (s.bs. & deaths 0 - 6 days)	32	13	30.8	29.3
Rates per 1,000 Live Births				
Neonatal death rate (deaths 0 - 27 days)	19	0	15.1	14.3
Infant death rate (deaths 0 - 364 days)	26	6	21.6	21.1

TABLE II - BIRTHS & DEATHS, 1958 - 1963

	M	F	Persons
Live Births:			
Legitimate	409	379	788
Illegitimate	15	14	29
	424	393	817
Deaths from all causes:	286	245	531
Deaths from pregnancy, childbirth, abortion		-	-
Still Births:			
Legitimate	10	4	14
Illegitimate	-	-	-
	10	4	14
Deaths - 0 to 6 days:			
Legitimate	∠ 7	∠ 2	∠ 9
Illegitimate	∠ -	∠ -	∠ -
	∠ 7	∠ 2	13
Deaths - 7 to 27 days:			
Legitimate	1	-	1
Illegitimate	-	-	-
	1	-	1
Deaths - 28 to 364 days:			
Legitimate	2	3	5
Illegitimate	-	-	-
	2	3	5
Total under 1 year:			
Legitimate	∠ 10	∠ 5	∠ 15
Illegitimate	∠ -	∠ -	∠ -
	∠ 10	∠ 5	19

	Swanscombe U.D.	England & Wales
Rates per 1,000 Home Population		
Crude live birth rate	15.2	17.3
Live birth rate adjusted by comparability factor	14.3	17.3
Crude death rate	9.8	11.8
Death rate adjusted by comparability factor	12.1	11.8
Rates per 1,000 Live and Stillbirths		
Maternal death rate	0	0.36
Stillbirth rate	16.9	19.5
Perinatal death rate (s.bs. & deaths 0-6 days)	32.4	32.4
Rates per 1,000 Live Births		
Neonatal death rate (deaths 0-27 days)	17.1	15.4
Infant death rate (deaths 0-364 days)	23.3	21.8

TABLE III - CAUSES OF DEATH ACCORDING TO SEX

Registrar General's Return

	1958			1959			1960		
	M	F	P	M	F	P	M	F	P
All causes	51	32	83	47	35	82	49	39	88
Tuberculosis, resp.	-	-	-	2	1	3	-	-	-
Tuberculosis, other	-	-	-	-	-	-	-	-	-
Syphilitic disease	-	-	-	-	-	-	1	-	1
Diphtheria	-	-	-	-	-	-	-	-	-
Whooping Cough	-	-	-	-	-	-	-	-	-
Meningococcal inf.	-	-	-	-	-	-	-	-	-
Acute polio.	-	-	-	-	-	-	-	-	-
Measles	-	-	-	-	-	-	-	-	-
Other infec. dis.	-	-	-	-	-	-	-	-	-
Malig. neoplasm, stomach	1	1	2	2	1	3	1	-	1
lung	5	1	6	6	-	6	7	1	8
breast	-	2	2	-	3	3	-	2	2
uterus	-	-	- (17)	-	-	- (19)	-	1	1 (17)
other	5	2	7	4	3	7	3	2	5
Leukaemia, aleuk.	-	-	-	-	-	-	-	-	-
Diabetes	-	-	-	-	-	-	-	-	-
Vasc. les. of nervous system	3	6	9	6	6	12	3	7	10
Coronary disease	11	2	13	11	8	19	16	9	25
Hyperten. and heart	1	1	2	-	-	-	-	-	-
Other heart dis.	1	1	2 (23)	1	2	3 (30)	6	4	10 (45)
Other circ. dis.	3	3	6	2	6	8	4	6	10
Influenza	-	-	-	1	-	1	-	-	-
Pneumonia	4	4	8	3	1	4	2	1	3
Bronchitis	8	2	10 (18)	3	-	3 (8)	3	1	4 (8)
Other resp. dis.	-	-	-	-	-	-	1	-	1
Ulcer stom. and duo.	1	-	1	-	1	1	-	-	-
Gastritis, enteritis	-	-	-	-	-	-	-	-	-
Nephritis & nephrosis	-	-	-	-	1	1	-	1	1
Hyperplasia of pros.	1	-	1	-	-	-	-	-	-
Pregnancy, abort.	-	-	-	-	-	-	-	-	-
Congen. malform.	-	-	-	1	-	1	-	-	-
Other def. & ill-def.	3	5	8	4	2	6	2	4	6
Motor vehicle acc.	-	-	-	1	-	1	-	-	-
All other acc.	4	-	4	-	-	-	-	-	-
Suicide	-	2	2	-	-	-	-	-	-
Homicide and operations of war	-	-	-	-	-	-	-	-	-

TABLE III - CAUSES OF DEATH ACCORDING TO SEX (Continued)

Registrar General's Return

	1961			1962			1963		
	M	F	P	M	F	P	M	F	P
All causes	42	46	88	46	46	92	51	47	98
Tuberculosis, resp.	1	-	1	-	-	-	-	-	-
Tuberculosis, other	-	-	-	-	-	-	-	-	-
Syphilitic dis.	-	-	-	1	-	1	-	-	-
Diphtheria	-	-	-	-	-	-	-	-	-
Whooping Cough	-	-	-	-	-	-	-	-	-
Meningococcal inf.	-	-	-	-	-	-	-	-	-
Acute polio.	-	-	-	-	-	-	-	-	-
Measles	-	-	-	-	-	-	-	-	-
Other inf. dis.	-	-	-	-	-	-	-	-	-
Malig. neoplasm, stomach	-	-	-)	4	1	5)	-	1	1)
lung	3	-	3)	2	-	2)	5	-	5)
breast	1	6	7)	-	1	1)	-	2	2)
uterus	-	-	-)20	-	3	3)20	-	2	2)21
other	2	7	9)	4	4	8)	4	7	11)
Leukaemia, aleuk.	-	1	1)	1	-	1)	-	-	-)
Diabetes	-	1	1	-	2	2	-	-	-
Vasc. les. of nervous system	1	6	7	1	8	9	8	6	14
Coronary disease	14	3	17)	9	4	13)	19	8	27)
Hyperten. and heart	1	3	4)	1	-	1)	-	3	3)
Other heart dis.	2	3	5)34	3	5	8)29	5	5	10)43
Other circ. dis.	3	5	8)	2	5	7)	1	2	3)
Influenza	-	-	-)	-	1	1)	-	1	1)
Pneumonia	4	2	6)	4	5	9)	2	2	4)
Bronchitis	5	3	8)15	4	3	7)17	2	1	3) 8
Other resp. dis.	-	1	1)	-	-	-)	-	-	-)
Ulcer stom. and duo.	-	-	-	2	1	3	-	-	-
Gastritis, enteritis	-	1	1	1	-	1	-	2	2
Nephritis & nephrosis	-	-	-	-	-	-	-	-	-
Hyperplasia of pros.	-	-	-	-	-	-	-	-	-
Pregnancy, abort.	-	-	-	-	-	-	-	-	-
Congen. malform.	-	-	-	-	1	1	-	-	-
Other def. & ill-def.	3	3	6	4	2	6	2	4	6
Motor vehicle acc.	-	1	1	3	-	3	1	-	1
All other acc.	2	-	2	-	-	-	1	1	2
Suicide	-	-	-	-	-	-	-	-	-
Homicide and ops. of war	-	-	-	-	-	-	1	-	1

TABLE IV - CAUSES OF DEATH ACCORDING TO SEX.

Aggregate of years 1958 - 1963

Registrar General's Returns.

	M	F	Persons	
All causes	286	245	531	
Tuberculosis, respiratory	3	1	4	
Tuberculosis, other	-	-	-	
Syphilitic disease	2	-	2	
Diphtheria	-	-	-	
Whooping Cough	-	-	-	
Meningococcal infections	-	-	-	
Acute poliomyelitis	-	-	-	
Measles	-	-	-	
Other infective and parasitic disease	-	-	-	
Malignant neoplasm, stomach	8	4	12	
Malignant neoplasm, lung, bronchus	28	2	30	
Malignant neoplasm, breast	1	16	17	114
Malignant neoplasm, uterus	-	6	6	
Other malignant and lymphatic neoplasms	22	25	47	
Leukaemia, aleukaemia	1	1	2	
Diabetes	-	3	3	
Vascular lesions of nervous system	22	39	61	
Coronary disease, angina	80	34	114	
Hypertension with heart disease	3	7	10	204
Other heart disease	18	20	38	
Other circulatory disease	15	27	42	
Influenza	1	2	3	
Pneumonia	19	15	34	74
Bronchitis	25	10	35	
Other diseases of the respiratory system	1	1	2	
Ulcer of stomach and duodenum	3	1	4	
Gastritis, enteritis and diarrhoea	1	3	4	
Nephritis and nephrosis	-	2	2	
Hyperplasia of prostate	1	-	1	
Pregnancy, childbirth, abortion	-	-	-	
Congenital malformations	1	1	2	
Other defined and ill-defined diseases	18	20	38	
Motor vehicle accidents	5	1	6	
All other accidents	7	1	8	17
Suicide	-	2	2	
Homicide and operations of war	1	-	1	

TABLE V - CAUSES OF DEATH ACCORDING TO AGE 1963 (R.G's Return).

	All ages	- 4 wks	4 wks -	1 - 4	5 - 14	15 - 24	25 - 34	35 - 44	45 - 54	55 - 64	65 - 74	75+
Persons												
All causes	98	-	1	-	-	1	-	3	7	16	29	41
Malignant neoplasm, stomach	1	-	-	-	-	-	-	-	-	1	-	-
Malignant neoplasm, lung	5	-	-	-	-	-	-	-	-	3	2	-
Malignant neoplasm, breast	2	-	-	-	-	-	-	1	-	-	-	1
Malignant neoplasm, uterus	2	-	-	-	-	-	-	-	1	-	-	1
Other malig. & lymph. neo's.	11	-	-	-	-	-	-	-	2	1	3	5
Vasc. les. nerv. system	14	-	-	-	-	-	-	-	1	2	2	9
Coronary disease, angina	27	-	-	-	-	-	-	1	1	7	8	10
Hypertension and heart	3	-	-	-	-	-	-	-	-	-	1	2
Other heart disease	10	-	-	-	-	-	-	1	1	-	6	2
Other circulatory disease	3	-	-	-	-	-	-	-	-	-	-	3
Influenza	1	-	-	-	-	-	-	-	-	-	-	1
Pneumonia	4	-	1	-	-	-	-	-	-	-	1	2
Bronchitis	3	-	-	-	-	-	-	-	-	-	2	1
Gastritis, enteritis	2	-	-	-	-	-	-	-	-	-	1	1
Other def. & ill-def. dis.	6	-	-	-	-	-	-	-	-	1	3	2
Motor vehicle accidents	1	-	-	-	-	1	-	-	-	-	-	-
All other accidents	2	-	-	-	-	-	-	-	-	1	-	1
Homicide & ops. of war	1	-	-	-	-	-	-	-	1	-	-	-
Males												
All causes	51	-	-	-	-	1	-	2	3	13	14	18
Malignant neoplasm, lung	5	-	-	-	-	-	-	-	-	3	2	-
Other malig, & lymph. neo's.	4	-	-	-	-	-	-	-	-	1	-	3
Vasc. les. of nerv. system	8	-	-	-	-	-	-	-	1	1	1	5
Coronary disease, angina	19	-	-	-	-	-	-	1	1	6	6	5
Other heart disease	5	-	-	-	-	-	-	1	-	-	3	1
Other circ. disease	1	-	-	-	-	-	-	-	-	-	-	1
Pneumonia	2	-	-	-	-	-	-	-	-	-	-	2
Bronchitis	2	-	-	-	-	-	-	-	-	-	2	-
Other def. & ill-def. dis.	2	-	-	-	-	-	-	-	-	1	-	1
Motor vehicle accidents	1	-	-	-	-	1	-	-	-	-	-	-
All other accidents	1	-	-	-	-	-	-	-	-	1	-	-
Homicide & ops. of war	1	-	-	-	-	-	-	-	1	-	-	-
Females												
All causes	47	-	1	-	-	-	-	1	4	3	15	23
Malignant neoplasm, stomach	1	-	-	-	-	-	-	-	-	1	-	-
Malignant neoplasm, breast	2	-	-	-	-	-	-	1	-	-	-	1
Malignant neoplasm, uterus	2	-	-	-	-	-	-	-	1	-	-	1
Other malig. & lymph. neo's.	7	-	-	-	-	-	-	-	2	-	3	2
Vasc. les. of nerv. system	6	-	-	-	-	-	-	-	-	1	1	4
Coronary disease, angina	8	-	-	-	-	-	-	-	-	1	2	5
Hypertension and heart	3	-	-	-	-	-	-	-	-	-	1	2
Other heart disease	5	-	-	-	-	-	-	-	1	-	3	1
Other circ. disease	2	-	-	-	-	-	-	-	-	-	-	2
Influenza	1	-	-	-	-	-	-	-	-	-	-	1
Pneumonia	2	-	1	-	-	-	-	-	-	-	1	-
Bronchitis	1	-	-	-	-	-	-	-	-	-	-	1
Gastritis, enteritis	2	-	-	-	-	-	-	-	-	-	1	1
Other def. & ill-def. dis.	4	-	-	-	-	-	-	-	-	-	3	1
All other accidents	1	-	-	-	-	-	-	-	-	-	-	1

TABLE VI - MAIN CAUSES OF DEATH

All Ages	All Causes	Main Causes	Other Causes	Circ. Disease	Cancer	Vasc. Les.N.S.	Resp. Dis.
Swanscombe U.D							
1958	83	67	16	23	17	9	18
1959	82	69	13	30	19	12	8
1960	88	80	8	45	17	10	8
1961	88	76	12	34	20	7	15
1962	92	75	17	29	20	9	17
1963	98	86	12	43	21	14	8
1958-63	531	453	78	204	114	61	74
%	100%	85%	15%	38%	21%	12%	14%
Dartford Town							
1958	454	361	93	165	86	51	59
%	100%	80%	20%	37%	19%	11%	13%
1959	436	366	70	151	92	63	60
%	100%	84%	16%	35%	21%	14%	14%
1960	400	328	72	148	83	34	63
%	100%	82%	18%	37%	21%	9%	16%
1961	452	375	77	178	75	47	75
%	100%	83%	17%	39%	17%	10%	17%
1962	428	333	95	158	68	43	64
%	100%	78%	22%	37%	16%	10%	15%
1963	431	353	78	152	76	59	65
%	100%	82%	18%	33%	18%	14%	15%
England & Wales							
1958	526,843	431,140	95,703	197,514	95,804	76,177	61,645
%	100%	82%	18%	38%	18%	14%	12%
1959	100%	82%	18%	36%	19%	14%	13%
1960	100%	82%	18%	38%	19%	14%	11%
1961	100%	83%	17%	37%	18%	14%	13%
1962	100%	83%	17%	38%	18%	14%	13%
1963	572,568	477,021	95,847	213,522	102,416	80,340	80,743
%	100%	83%	17%	37%	18%	14%	14%
1963							
Aged 0-74 years.							
Swanscombe U.D	57	49	8	26	14	5	4
%	100%	86%	14%	46%	25%	9%	7%
Dartford Town	224	179	45	75	57	22	25
%	100%	80%	20%	33%	25%	10%	11%
England & Wales	321,872	256,497	165,375	105,514	75,443	34,355	41,185
%	100%	80%	20%	33%	23%	11%	13%
Aged 75 years & over.							
Swanscombe U.D.	41	37	4	17	7	9	4
%	100%	90%	10%	41%	17%	22%	10%
Dartford Town	207	174	33	77	20	37	40
%	100%	84%	16%	37%	10%	18%	19%
England and Wales	250,996	220,524	30,472	108,008	26,973	45,985	39,558
%	100%	88%	12%	43%	11%	18%	16%

TABLE VII - NOTIFIABLE DISEASES OTHER THAN TUBERCULOSIS

	Ages in years.							
	-1	1 - 4	5-14	15-44	45-64	65+	Ages Unknown	All Ages
DYSENTERY								
1961								
2nd Quarter			3					3
1963								
1st Quarter	3	10	40	13			1	67
2nd Quarter			2					2
4th Quarter				1				1
ERYSIPELAS								
1961								
2nd Quarter			1					1
3rd Quarter					1			1
MEASLES								
1959								
1st Quarter		11	32					43
2nd Quarter	9	90	87					186
3rd Quarter		2					1	3
1961								
1st Quarter		12	4					16
2nd Quarter	1	14	16					31
3rd Quarter	1	27	37					65
1962								
3rd Quarter		1						1
4th Quarter		2	3					5
1963								
1st Quarter	1	16	27				2	46
2nd Quarter		15	94					109
3rd Quarter	1	9	3				1	14
MENINGOCOCCAL INFECTION								
1958								
4th Quarter		1						1
PNEUMONIA								
1958								
1st Quarter			1	1		7		9
2nd Quarter		1	1		4			6
3rd Quarter				1		1		2
4th Quarter				1	1			2
1959								
1st Quarter	1	1			6		2	10
2nd Quarter		3						3
4th Quarter			1					1
1960								
2nd Quarter	1							1
1961								
1st Quarter			1					1
4th Quarter					1			1

TABLE VII - NOTIFIABLE DISEASES OTHER THAN TUBERCULOSIS (Continued)

	Ages in years							
	-1	1-4	5-14	15-44	45-64	65+	Ages Unknown	All Ages
PUERPERAL PYREXIA								
1958								
2nd Quarter				1				1
1963								
4th Quarter				1				1
SCARLET FEVER								
1958								
1st Quarter		1	1					2
2nd Quarter			1					1
4th Quarter		1						1
1959								
1st Quarter	1	4	3					8
2nd Quarter		3						3
3rd Quarter		1	3					4
4th Quarter		2						2
1960								
1st Quarter		1	2					3
2nd Quarter		1						1
1961								
1st Quarter		1	1					2
2nd Quarter			1					1
WHOOPING COUGH								
1958								
3rd Quarter		1						1
4th Quarter		1						1
1959								
1st Quarter		2						2
1960								
1st Quarter			3					3
3rd Quarter	1	9	10				1	21
4th Quarter		1						1
1961								
2nd Quarter	1	2	4					7
1963								
3rd Quarter		1	1					2
4th Quarter		3	2				1	6

In addition to the above statutory notifications, the following have been notified informally from schools (form 22 M.1.).

Chicken pox	1959	1	1962	10
Measles	1959	12	1961	27
Mumps	1960	6		
Rubella (German measles)	1960	1	1961	22
Scarlet fever	1958	1	1960	1
Whooping cough	1960	2		

TABLE V111 - TUBERCULOSIS

(a) Respiratory

NOTIFICATIONS IN RECENT YEARS.

1954	9	1959	5
1955	5	1960	5
1956	3	1961	1
1957	6	1962	3
1958	3	1963	4

NOTIFICATIONS BY AGE AND SEX.

	Total	0-1	1-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65+
1958												
Males	2	-	-	-	-	-	-	-	2	-	-	-
Females	1	-	-	1	-	-	-	-	-	-	-	-
1959												
Males	4	-	-	-	-	-	-	1	-	3	-	-
Females	1	-	-	-	-	1	-	-	-	-	-	-
1960												
Males	3	-	-	-	-	1	-	1	-	-	1	-
Females	2	1	1	-	-	-	-	-	-	-	-	-
1961												
Males	-	-	-	-	-	-	-	-	-	-	-	-
Females	1	-	-	-	-	-	-	1	-	-	-	-
1962												
Males	2	-	-	-	-	-	-	-	-	1	1	-
Females	1	-	-	-	-	-	-	1	-	-	-	-
1963												
Males	4	-	-	-	-	-	1	-	-	3	-	-
Females	-	-	-	-	-	-	-	-	-	-	-	-

NUMBER ON THE REGISTER ON DECEMBER 31ST.

	Males	Females	Persons		Males	Females	Persons
1954	84	71	155	1959	82	65	147
1955	83	66	149	1960	42	26	68
1956	82	65	147	1961	38	24	62
1957	81	69	150	1962	38	25	63
1958	83	66	149	1963	40	23	63

CHANGES IN REGISTER 1958 - 1963.

Additions:		Removals:	
		1958.	
New notifications	3	Left district	3
Moved into district	7	Recovered	6
	10	Deaths	2
			11
		1959.	
New notifications	5	Lost sight of	1
Moved into district	3	Left district	1
	8	Recovered	2
		Deaths	4
		Diagnosis not confirmed	2
			10
		1960.	
New notifications	5	Left district	2
Moved into district	2	Recovered	4
Restored to register	1	Deaths	-
	8	Revision of register	80
		Diagnosis not confirmed	1
			87

CHANGES IN REGISTER 1958 - 1963 (Cont'd)

Additions:			Removals:	
		1961		
New notifications	1		Left district	2
Moved into district	1		Recovered	5
	2		Deaths	1
				8
		1962		
New notifications	3		Left district	2
Moved into district	3		Recovered	1
	6		Deaths	2
				5
		1963		
New notifications	4		Left district	-
Moved into district	1		Recovered	5
	5			5

Of those removed from the register by death in the years 1958-63 there were four in whom the cause was respiratory tuberculosis. Ages were 46 to 56 years.

(b) Non-respiratory

NOTIFICATIONS IN RECENT YEARS.

1954	-	1959	1
1955	-	1960	1
1956	2	1961	1
1957	1	1962	-
1958	-	1963	-

New cases 1958-63:

1959 1 female aged 50 years, tuberculosis of neck glands.
1960 1 female aged 39 years, tuberculosis of neck glands.
1961 1 male aged 10 years, tuberculosis of hip.

NUMBER ON THE REGISTER ON DECEMBER 31ST.

	Males	Females	Persons		Males	Females	Persons
1954	16	13	29	1959	16	12	28
1955	14	13	27	1960	1	2	3
1956	16	12	28	1961	2	2	4
1957	17	12	29	1962	2	2	4
1958	16	11	27	1963	2	2	4

CHANGES IN REGISTER 1958 - 1963.

Additions:			Removals:	
		1958		
	Nil		Left district	1
			Recovered	1
				2
		1959		
New notification	1			Nil
		1960		
New notification	1		Regarded as recovered	1
			Revision of register	25
				26
		1961		
New notification	1			Nil
		1962		
	Nil			Nil
		1963		
	Nil			Nil

TABLE IX - VACCINATIONS

Virus Diseases

(a) POLIOMYELITIS

Vaccination doses received in the five years ending Dec. 31st 1963.

Second doses

Born	Injected					Oral		Total
	1959	1960	1961	1962	1963	1962	1963	1959-63
1957-63	138	109	156	22	2	106	147	680
1943-56	322	26	60	1	-	7	-	416
1933-42	486	67	85	8	-	17	7	
1921-32		275	239	6	-	28	3	
Others	30	6	2		-			1259
Total	976	483	542	37	2	158	157	2355

Third doses

Born	Injected			Injected & Oral		Oral		Total
	1959	1960	1961	1962	1963	1962	1963	1959-63
1957-63	117	143	133	110	17	106	147	773
1943-56	1251	190	94	52	1	7	0	1595
1933-42		258	84	49	3	17	7	
1921-32	202	98	254	146	3	28	3	1154
Others			2					
Total	1570	689	567	357	24	158	157	3522

Percentage of young population vaccinated 1959-63.

Born	Estimated Population	Number had second dose	% of population	Number had third dose*	% of population
1957-63	919	680	74%	773	84%
1943-56	1944	416	21%	1595	82%
1943-63	2863	1096	38%	2368	83%

*Vaccination began in 1956 some of those receiving 3rd doses received their second doses in 1956, 1957 or 1958. Thus more with 3rd doses than with 2nd doses within five years 1959-63.

Fourth doses (aged 5-11 years)

Born	Estimated Population	4th dose 1961	4th dose 1962	4th dose 1963	Total	Percentage*
1952-58	896	633	84	123	840	93%

* Assuming doses given early in school life and none have left the age group.

COMPARISON WITH OTHER AREAS.

Vaccinations in five years 1959-63 of those born 1943-63 expressed as percentage of estimated population.

	Swanscombe U.	Northfleet U.	Dartford R.D.	Dartford B.	Kent A.C*
2nd dose	38%		42%	36%	?
3rd dose	83%		84%	74%	81%

*Vaccinations since 1956 for Kent A.C.
In 1963 facilities continued to be made available for all persons over six months and under forty years of age.

TABLE IX - VACCINATIONS (cont'd)

(b) SMALLPOX

NUMBERS VACCINATED AND REVACCINATED by age at date of vaccination.

Vaccinated

Year	Under 1 year	1 year	2 - 4	5 - 14	15 or over	Total
1963	?	34	?	?	?	?
1962	118	29	49	193	254	643
1961	81	9	2	-	10	102
1960	73	2	4	6	1	86
1959	92	4		-	8	104
1958	76		0	1	2	79

Revaccinated

1963	?	?	?	0 *	?	?
1962	-	-	26	256	506	788
1961	-	-	-	-	1	1
1960	-	-	-	-	1	1
1959	-	-	-	2	6	8
1958	-	-	-	4	4	8

*Age 5 - 7 years

INFANT VACCINATION RATE. Up to the end of 1961 most infants who were vaccinated were vaccinated in the first year of life but in 1962 more infants than in former years were vaccinated at a later stage. In 1963 the second year of life was advocated as an age for vaccination. The percentage of the number of births in a given year of those vaccinated while under one year of age in that year is used as a vaccination rate up to 1962.

	Number of live births	Number vaccinated aged under 1 year	Percentage of births of those vaccinated
1963	156	Records no longer kept	?
1962	154	118	77%
1961	138	81	59%
1960	136	$\not>$ 73	$\not>$ 54%
1959	105	92	87%
1958	128	$\not>$ 76	$\not>$ 59%

$\not>$ = not more than

SECOND YEAR VACCINATION RATE. With the practice changing to vaccination in the second year of life the County no longer record vaccinations at ages under 1 year. The appropriate rate in future will be the vaccinations done as a percentage of infants surviving to the age of one year.

	Infants aged 1 year in January	Vaccinations done at ages 12 - 23 months	Percentage
1963	150	34	26%
1962	137	29	22%
1961	132	9	7%

SCHOOL CHILD IMMUNITY - December 1963 (approximate).

Estimated population aged 5-14 Born 1949-1958	Vaccinated or revaccinated before 1962 in school population	Vaccinated 1962 193 x 0.9+	Vaccinated 1963	Revaccinated 1962 256 x 0.9+	Revaccinated 1963	Vaccinations or revaccinations in school population by Dec.31.1963	% aged 5-14 with immunity Dec. 1963
1322	16 *	173	say 1	230	0	420	32%

*roughly 2 per year

+i.e. 1/10th left school.

SCHOOL CHILD REVACCINATIONS - December 1963

Av. infant vaccination rate 1949-58	No eligible for revaccination	Revaccinated before 1962 in school years	Revaccinated 1962 256 x 0.9*	Revaccinated 1963	Total revaccinated before Dec.31 1963 in school population	% of those eligible with immunity from revaccination
Say 70%	925	8 (estimated)+	230	0	238	26%

*i.e. 1/10th left school. +roughly 1 per year.

COMPARISONS WITH OTHER AREAS

	Swanscombe U.D.	Dartford R.D.	Dartford Borough	Northfleet U.D.	Kent A.C.	England & Wales
1962 Percentage of 1962 births of those vaccinated aged under 1 year	77%	74%	72%	59%	63%	49%
1963 Percentage of those aged 1 year vaccinated	26%	19%	18%	23%	17%	10%

Bacterial Diseases

(c) DIPHTHERIA

NUMBER VACCINATED

	Age at 31st December	Primary inoculations done in the year	Reinforcing inoculations done in the year
1963	0 - 4 years	159	104
	5 - 14 years	2	47
1962	0 - 4 years	163	84
	5 - 14 years	1	56
1961	0 - 4 years	158	91
	5 - 14 years	52	115
1960	0 - 4 years	151	27
	5 - 14 years	14	75
1959	0 - 4 years	119	3
	5 - 14 years	3	65
1958	0 - 4 years	117	5
	5 - 14 years	9	48

PRIMARY VACCINATIONS of those aged 0 - 4 years on December 31st 1963

Born	Vaccinated 1959	1960	1961	1962	1963	Vaccinated 1959-1963	Estimated Population
1963	-	-	-	-	80	80	155
1962	-	-	-	73	71	144	150
1961			65	74	4	143	137
1960	-	47	71	10	4	132	132
1959	23	75	5	6	0	109	100
Total vaccinated	23	122	141	163	159	608	674

TABLE IX - VACCINATIONS (cont'd)

(c) DIPHTHERIA (continued)

Born	v a c c i n a t e d					% 0 - 4 population vaccinated 1959 - 1963
	1959	1960	1961	1962	1963	
1963	-	-	-	-	52%	52%
1962	-	-	-	49%	47%	96%
1961	-	-	47%	54%	3%	104%
1960	-	36%	54%	8%	3%	100%
1959	23%	75%	5%	6%	0%	109%
% 0-4 population vaccinated in stated year	3%	18%	21%	24%	24%	90%

COMPARISON WITH OTHER AREAS

	Swanscombe U.D.	Northfleet U.D.	Dartford B.	Dartford R.D.	Kent A.C.
Percentage of estimated population born 1962 vaccinated in 1962 or 1963	96%	82%	84%	81%	80%

(d) WHOOPING COUGH

PRIMARY VACCINATIONS

Year	Age at December 31st 0-4 years	Age at December 31st 5-14 years
1963	152	0
1962	161	0
1961	154	35
1960	149	19
1959	138	5
1958	165	2

PRIMARY VACCINATIONS OF THOSE AGED 0 - 4 YEARS on December 31st 1963.

Born	v a c c i n a t e d						Estimated Population
	1959	1960	1961	1962	1963	1959-63	
1963	-	-	-	-	80	80	155
1962	-	-	-	73	68	141	150
1961	-	-	65	73	4	142	137
1960	-	47	70	10	-	127	132
1959	50	71	3	5	-	129	100
Total vaccinated	50	118	138	161	152	619	674

Percentage of children with primary vaccination

Born	V a c c i n a t e d					1959-63	
	1959	1960	1961	1962	1963		
1963	-	-	-	-	52%	52%	
1962	-	-	-	49%	45%	94%	
1961	-	-	47%	53%	3%	103%	*
1960	-	36%	53%	8%	0%	96%	
1959	50%	71%	3%	5%	0%	129%	
% of 0-4 total population Dec. 1963	7%	18%	21%	24%	23%	92%	

* Population apparently under estimated.

TABLE IX - VACCINATIONS (continued)

(d) WHOOPING COUGH (continued)

COMPARISON WITH OTHER AREAS

	Swanscombe U.D.	Dartford R.D.	Dartford B.	Northfleet U.D.	Kent A.C.
Percentage of estimated population born 1962 vaccinated in 1962 or 1963	94%	79%	83%	81%	80%

(e) TETANUS

Diphtheria/whooping cough/tetanus combined vaccine was introduced in 1960 hence primary vaccinations from 1960 onwards against diphtheria are similar in number to those against whooping cough. This is illustrated in the figures above. The numbers vaccinated against tetanus are not available but can be assumed to be similar to those vaccinated against diphtheria and whooping cough.

(f) TUBERCULOSIS

Children in close contact with patients suffering from tuberculosis are, if necessary, vaccinated with B.C.G. at the chest clinic. Vaccination of school children is carried out by the School Health services. These children are skin tested and those who do not react are vaccinated. Those who do react are referred to the Chest Physician for further investigation. Figures are not available for these vaccinations.

ENVIRONMENTAL MATTERS

I - HOUSING

NEW DWELLINGS.

The following dwellings have been completed during 1958 to 1963:-

	1958	1959	1960	1961	1962	1963
By Council enterprise	16	18	26	48	52	32
By private enterprise	5	25	67	43	6	6

The dwellings completed by the Council were as follows:-

	1958	1959	1960	1961	1962	1963
One bedroom	4	-	2	32	30	12
Two bedroom	12	-	4	8	8	8
Three bedroom	-	18	20	8	14	12

APPLICANTS FOR COUNCIL HOUSES.

The number of applicants on the Council's waiting list on December 31st 1962 was 381. After a revision of the register by circularization of the applicants, the number of applications remaining on the register on December 31st 1963 was 293.

HOUSING PRIORITY ON MEDICAL GROUNDS.

Recommendations were as follows:-

	Tuberculosis. Total applications received and number of points given				Other than tuberculosis. Total applications received and number of points given			
	Total	0	1-5	6-10	Total	0	1-5	6-10
1959	-	-	-	-	1	1	-	-
1960	2	-	1	1	13	4	9	-
1961	4	-	4	-	23	11	12	-
1962	-	-	-	-	14	6	8	-
1963	4	-	3	1	26	7	19	-

Number rehoused after being awarded some degree of medical priority:-

	Tuberculosis	Other than tuberculosis.
1960	1	-
1961	1	10
1962	1	6
1963	1	2

IMPROVEMENT GRANTS.

	Standard.	Total of Grants made.	Discretionary.	Total of Grants made.
1958	-	-	5	£640. 10. 0.
1959	3	£219. 9. 6.	15	£4,463. 0. 0.
1960	8	£534.13. 7.	18	£3,326. 17. 0.
1961	6	£479. 3. 5.	7	£2,160. 11. 0.
1962	12	£938. 8.11.	10	£2,533. 14. 6.
1963	19	£1,824.19. 4.	9	£1,413. 10.10.

RENT ACT CERTIFICATES.

	Number issued					
	1958	1959	1960	1961	1962	1963
	24	3	-	-	-	-

HOUSES DEMOLISHED

	1958	1959	1960	1961	1962	1963
Clearance Areas	-	21	13	-	-	-
Demolition Orders	-	1	3	-	2	-

ADDRESSES OF HOUSES DEMOLISHED.

Swanscombe	Greenhithe
131-139 Church Road.	Nos. 1 - 6 Jackson Square.
Nos. 1, 3, 5, 7, 9, 11, 13 The Grove.	Wharf Cottages, Nos. 88-98 High Street.
Nos. 12, 13, 14 Craylands Lane.	Nos. 20, 22, 24, 26 High Street.
Nos. 5, 6, 7, 9, 11 Craylands Square.	Church Cottage, London Road.
	Nos. 1 and 2 Park Cliff Cottages.
	No. 3 The Avenue.

UNFIT HOUSES MADE FIT:

		By owner.
1958:	After informal action by L.A.	30
	After issue of Statutory Notices by L.A.	8
1959:	After informal action by L.A.	39
	After issue of Statutory Notices by L.A.	18
1960:	After informal action by L.A.	24
	After issue of Statutory Notices by L.A.	8
1961:	After informal action by L.A.	22
	After issue of Statutory Notices by L.A.	10
1962:	After informal action by L.A.	29
	After issue of Statutory Notices by L.A.	11
1963:	After informal action by L.A.	20
	After issue of Statutory Notices by L.A.	26

REPAIRS: The following are the details of repairs initiated by the Council's Public Health Inspector:

	1958	1959	1960	1961	1962	1963
Ashbins provided	115	86	65	94	76	99
Ceilings repaired	2	1	10	2	-	6
Cesspools repaired or abolished	2	1	1	1	2	1
Chimney stacks repaired or rebuilt	4	-	2	5	1	1
Chimney flues repaired	1	1	1	3	3	-
Doors repaired or renewed	6	5	3	4	6	2
Drainage systems repaired	6	42	8	6	60	9
Eaves gutters repaired or renewed	6	5	2	5	1	9
Floors repaired or relaid	8	8	5	6	3	9
Rainwater downspouts repaired or renewed	1	1	-	-	1	1
Roofs repaired	13	4	3	11	4	12
Stoves repaired or renewed	1	1	-	-	-	-
Walls repaired	25	14	17	20	18	34
Water closets repaired	16	17	16	33	25	13
Windows repaired or renewed	58	5	4	18	7	14
Yard surfaces repaired or renewed	8	3	-	3	5	2
Staircase repaired	-	1	-	1	1	-
Fireplace repaired	-	-	-	-	1	-
Sinks and waste pipes repaired or renewed	-	-	-	-	11	4

Visits made by the Council's Public Health Inspectors:-

1958	1959	1960	1961	1962	1963
415	309	360	311	320	404

CARAVANS LICENSED

1958	1	Inveresk Sports Ground.
1959	1	Inveresk Sports Ground.
1960	Nil	
1961	3	Inveresk Sports Ground; Mount Cottage, Greenhithe; Farm House, Galley Hill.
1962	Nil	
1963	Nil	

HOUSING PROGRESS.

From local information.

Houses available.

	Population 1953	Houses built in 11 years 1953-63				Houses demolished	Increase in houses available 1953-63	
		Council	Private	Total	% Private		Number	Per 10,000 1953 population
S'combe U.D.	8614	322	287	600	46%	87	513	590
N'fleet U.D.	19280	966	1054	2018	52%	207	1811	940
D'ford Town*	38430	1882	1651	3533	47%	351	3182	830
D'ford Rural*	36610	1710	5176	6886	75%	265	6621	1810

*"Town" is used to denote the Borough less 2000 institutional population.
"Rural" " " " " " R.D. " " " "

From Census reports.

Occupancy of dwellings.

(Households consisting of two or more ~~facilities~~ families in brackets)

Households present sharing dwellings

	1951	1961	Decrease	% decrease
Swanscombe U.D.	238	(60) 45	193	81%
Northfleet U.D.	557	(190) 158	399	72%
Dartford M.B.	895	(330) 280	615	69%
Dartford R.D.	535	(490) 109	426	80%
Kent A.C.	44984	18313	26671	59%

Households present not sharing dwellings

	1951	1961	Increase	% increase
Swanscombe U.D.	2182	2688	506	23%
Northfleet U.D.	5085	6849	1764	35%
Dartford M.B.	10452	13456	3004	29%
Dartford R.D.	9660	15725	6065	63%
Kent A.C.	416047	514938	53907	12%

	Percentage households sharing		Persons per room			
			All dwellings		Shared dwellings	
	1951	1961	1951	1961	1951	1961
Swanscombe U.D.	9.8%	1.7%	0.75	0.68	0.94	0.99
Northfleet U.D.	9.9%	2.2%	0.73	0.66	0.92	0.89
Dartford M.B.	7.9%	2.0%	0.72	0.67	0.97	0.77
Dartford R.D.	5.2%	0.7%	0.74	0.68	0.91	0.73
Kent A.C.	9.7%	3.4%	0.68	0.63	0.83	0.73

The above are based on tables 11 and 13 of the census reports for 1951 and 1961 respectively. The following are based on tables 10 and 11.

1951

	Dwellings occupied by the following number of private households			Total dwellings occupied	Dwellings vacant	Total dwellings occupied & vacant	Private households therein
	1	2	3				
Swanscombe U.D.	2187	107	6	2300	39	2339	2420
Northfleet U.D.	5092	203	39	5334	118	5452	5642
Dartford M.B.	10477	400	20	10897	162	11059	11347
Dartford R.D.	9674	226	21	9921	268	10189	10195

1961

	Dwellings containing the following number of household spaces			Dwellings occupied	Dwellings vacant	Dwellings occupied & vacant	Household spaces occupied
	1	2	3				
Swanscombe U.D.	2756	19	2	2737	40	2777	2761
Northfleet U.D.	7024	64	9	6995	102	7097	7084
Dartford M.B.	13740	127	11	13727	151	13878	13879
Dartford R.D.	16219	51	4	15987	287	16274	16043

II WATER

WATER SUPPLY FOR DOMESTIC USE. The Metropolitan Water Board supply piped water to all the permanent dwellings in the Swanscombe Urban District.

The M.W.B. have no wells sited here but the chalk below forms part of the gathering ground for their wells the water from which is pumped into a grid supplying this and neighbouring districts. Their wells in Dartford Borough and Rural District are the main contributors to our supply.

QUANTITY. Supplies are at present abundant.

ACCESSIBILITY. All permanent dwellings have water piped into them.

WATER FOR INDUSTRIAL USE. Water is abstracted in the area for manufacturing purposes and the following are the main industrial users:-

(1) Empire Paper Mills - Two wells supply water for this factory. One situated in Bean Road, Greenhithe and the other off Southfleet Road, Swanscombe. For domestic purposes supplies from these wells are chlorinated. The Mills have also three test bores used to determine the chemical variation of the water.

(2) New Northfleet Paper Mills - Water used for manufacturing purposes at these Works is obtained from two pumping installations situated in the Northfields quarry. A further well occasionally used is situated near the entrance to the Works. Water for domestic purposes is provided by the M.W.B.

(3) A.P.C.M. Swanscombe Works - The domestic supply for these Works is obtained from the M.W.B. Water for industrial purposes is pumped from one of their local quarries.

QUALITY.

(a) Bacteriological analyses

The details of the thousands of samples taken by M.W.B. for analysis from the raw water in their wells are given in the accompanying table. In the remaining analyses referred to below the number of E. coli type I per 100 ml. is used to summarize the information provided by sampling by Council's Public Health Inspectors.

	Number of samples.	E. coli type I.
M.W.B. samples from consumers premises		
1958	8	0
1959	6	0
1960	11	0
1961	6	0
1962	3	0
1963	5	0
Swanscombe Cement Works		
1958	1	0
1959-63	-	
Empire Paper Mills Ltd.		
1958	2	0
1959	3	0
1960	1	0
1961	3	0
1962	6	0
1963	7	0

(b) Chemical analyses

The details of the numerous samples taken by the M.W.B. from the water in their wells are given in the table below. At the consumers premises 3 samples for certain chemical analysis were taken in 1958 by the Council's P.H.I's. These were as follows:-

Source.	Analysis required.	Result.
Store tank	Metal content	Iron 0.45 p.p.m. Other metals nil.
Drinking fountain	Metal content	All metals nil.
Dispensing Chemists	Free chlorine content	Free chlorine not detected.
E.P. Mills.1958 & 1961	General	Nitrate N. 7 p.p.m.

BACTERIOLOGICAL RESULTS - METROPOLITAN WATER BOARD

Raw water, before Treatment

Well	No. of samples	Plate count per ml.		Coliform count		Escherichia coli count	
		1 day at 37°C	3 days at 22° C.	% samples negative in 100 ml.	Average per 100 ml.	% samples negative in 100 ml.	Average per 100 ml.
1959							
Darenth	146	0.2	3	97	0.1	100	-
Darenth borehole	219	0.1	56	87	0.3	99	-
Dartford	242	0.1	15	100	-	100	-
Eynsford	229	0.1	9	81	1.4	99	-
Eynsford borehole	175	0.1	3	100	-	100	-
Green St. Green	254	0.1	4	94	0.3	96	0.1
Horton Kirby No.1	132	0.3	26	97	0.2	99	-
Horton Kirby No.2	108	-	2	98	-	99	-
Southfleet	130	0.8	104	92	0.2	98	-
Wilmington No.1	137	0.7	44	76	0.3	96	-
Wilmington No.2	152	2.0	95	86	0.2	96	0.1
1960							
Darenth	174	0.1	4	86	0.4	93	0.2
Dartford	239	-	6	100	-	100	-
Eynsford No.1	197	-	74	71	1.2	97	0.1
Eynsford No.2	140	-	3	99	-	100	-
Green St. Green	251	0.5	15	81	1.0	89	0.3
Horton Kirby No.1	216	0.2	105	92	0.7	95	0.4
Horton Kirby No.2	150	0.3	14	99	-	100	-
Southfleet	214	0.8	35	96	0.1	100	-
Wilmington No.2	249	0.1	45	94	0.1	99	-
1961							
Darenth	226	-	38	96	0.1	99	-
Dartford	210	-	17	100	-	100	-
Eynsford No. 1	154	0.2	74	77	0.9	92	0.3
Eynsford No. 2	163	-	4	99	-	100	-
Green St. Green	237	0.2	48	92	0.2	95	0.1
Horton Kirby No.1	211	0.1	28	98	0.2	99	0.2
Horton Kirby No.2	151	0.1	26	99	-	100	-
Southfleet	239	0.1	5	97	0.1	100	-
Wilmington No.2	196	0.2	49	97	0.1	100	-
1962							
Darenth	250	0.0	129	96	0.1	99	-
Dartford	249	0.0	10	97	0.1	99	-
Eynsford No.1	219	0.3	70	90	0.5	100	-
Eynsford No.2	137	0.0	4	99	-	100	-
Green St.Green	251	0.0	3	98	-	99	-
Horton Kirby No.1	163	0.5	27	98	-	99	-
Horton Kirby No.2	221	0.0	1	100	-	100	-
Southfleet	231	0.1	30	99	0.1	100	-
Wilmington No.2	246	0.1	42	94	0.9	97	-
1963							
Darenth	251	0.0	10	99	-	99	-
Dartford	241	1.1	167	98	1.4	100	-
Eynsford No.1	235	1.7	37	83	0.9	100	-
Eynsford No.2	122	0.5	15	92	0.3	99	1
Green St.Green	249	0.1	42	98	2.5	99	-
Horton Kirby No.1	177	0.0	79	97	0.1	98	0.1
Horton Kirby No.2	196	0.0	5	98	0.1	98	0.1
Southfleet	246	0.8	14	99	0.1	100	-
Wilmington	197	0.2	51	98	-	99	-

From each source of supply a similar number of samples of treated water were taken. Over 99% were negative for coliforms and 100% were negative for E.coli.

II WATER (continued)

1958-1963 CHEMICAL RESULTS - METROPOLITAN WATER BOARD

(Milligrammes per litre)

Well	No. of samples	Ammonia Nitrogen	Albuminoid Nitrogen	Nitrate Nitrogen	Chlorides as Chlorine	Oxygen absorbed in 4 hrs at 27°C.	Hardness (Total)	Hardness (non-carb.)	pH. value	*Fluoride as Fluorine	*Sodium as Na.	*Potassium as K.	Conductivity, reciprocal megohms
Darenth	29	.011	.023	5.2	17	.10	266	35	7.2	.18	11	1.9	493
Dartford	25	.013	.026	4.6	20	.07	277	47	7.2	.15	12	3.1	523
Eynsford	40	.010	.026	4.1	16	.04	263	32	7.3	.20	9	1.2	473
Green St.Green	43	.012	.023	6.8	17	.06	282	35	7.2	.10	11	2.0	513
Horton Kirby	38	.011	.024	4.6	18	.08	262	39	7.3	.15	10	1.8	492
Southfleet	20	.011	.022	5.8	18	.05	290	33	7.1	.15	11	1.8	535
Wilmington	26	.015	.028	8.0	22	.13	288	52	7.2	.15	15	2.2	548

*Averages based on fewer samples.

THE COUNCIL'S SWIMMING BATH.

Swimming bath water is liable to be contaminated with organisms coming from dust from footpaths and from the human nose, mouth, skin and bowel. A number of those using the bath come out cleaner than when they went in. The organisms bathers leave behind are removed by filtration and break point chlorination plant under the care of the Council's Engineer.

Bacteriological analysis of swimming bath water is done to ascertain the efficiency of filtration and chlorination on the pollution introduced by bathers and other means. Counts of E. coli type I in 100 ml measure pollution by bowel organisms. Plate counts measure pollution by skin, nose and other organisms. The aim is that no sample from a bath will contain E. coli type I in 100 ml. water and in 75% of samples the 24 hour plate count at 37°C from 1 ml. water will not exceed 10 colonies and that in the remainder will not exceed 100 colonies. When the quality of the bath water falls below this standard adjustments of filtration and chlorination are made to remedy matters.

The following table summarises the results of bacteriological analyses by the public health laboratory service of samples taken by the Council's public health inspectors.

	Samples	E. coli type I	Plate count						
			0	1-10	11-50	51-100	101-500	501 +	Uncount-able
INLET (Shallow end)									
1958	4	0	4	-	-	-	-	-	-
1959	5	0	5	-	-	-	-	-	-
1960	5	0	5	-	-	-	-	-	-
1961	14	0	6	4	2	-	1	-	1
1962	16	0	7	1	3	2	3	-	-
1963	28	0	13	9	3	2	-	-	1
OUTLET (Deep end)									
1958	4	0	4	-	-	-	-	-	-
1959	5	0	5	-	-	-	-	-	-
1960	5	0	5	-	-	-	-	-	-
1961	18	0	5	9	1	1	-	1	1
1962	17	0	3	6	8	-	-	-	-
1963	28	0	7	15	4	-	-	-	2

"Swimming can be of immense service to the citizen. Its value from the life-saving and life-preserving standpoint requires no emphasis. Apart from this aspect, swimming is possibly the best method of exercising every muscle of the body in the briefest time." (Ministry publication).

The admissions of bathers to the baths and the total net cost to the rates have been as follows:-

	Admissions				Cost to rates
	Public	Schools	Clubs	Spectators	
1958	19,532	5,502	354	931	£1,435
1959	17,569	3,500	234	1,133	£1,168
1960	31,250	5,360	2,765	2,181	£854
1961	14,997	3,814	2,718	1,343	£2,027
1962	16,516	5,021	2,115	1,794	£1,730
1963	9,617	3,800	2,035	1,470	£2,081

THE SWIMMING BATH OF H.M.S. WORCESTER.

In 1959 two samples at inlet and two at outlet showed no E. coli type I.

III DRAINAGE

With few exceptions in 1963 all the dwellings of this district were on main drainage. 2,494 dwellings drained to the Swanscombe sewage works 208 drained to the Stone sewage works of Dartford Rural District Council and 56 drain to Northfleet sewage works. Improvements costing £96,500 were completed to the Swanscombe sewage works in 1961.

All the 344 dwellings built in the period 1958-63 were with one exception connected to the sewer. The exception was drained to a cesspool.

At the end of 1963 the position was:

Dwellings with water closets discharging into sewer	2,758
" " " " " " septic tanks	0
" " " " " " cesspools	41
" using pail closets (caravans)	3
" " privies	0
Factories on main drainage	27
" " own sewage disposal unit	1
" " septic tanks	0
" " cesspools	6
" " pail closets	0

The following was initiated by the Council's Public Health Inspectors:-

	1958	1959	1960	1961	1962	1963
Pail closets abolished	-	-	-	-	-	-
Cesspools repaired or abolished	2	1	1	1	2	1
Visits regarding cesspools	4	2	1	3	2	1
Drains repaired or reconstructed	2	24	8	1	4	5
Drains tested	39	72	93	92	58	38
Drainage inspections	39	92	111	94	63	49
Inspection chambers repaired	3	10	-	4	-	1

SEWAGE DISPOSAL WORKS. The following summarises the information provided by analyses of the effluent from the Works:

	Averages in parts per million			
	1958	1959	1960	1961
Suspended matter	112	90	80	166
Albuminoid ammonia	8	7	11	13
Oxygen absorbed 3 hours at 98°F	60	58	81-	87
Therefore impurity figure	68	61	94	106
Oxygen absorbed 5 days 20°C (B.O.D.)	-	332	699+	407
Samples (all P.L.A. lab.)	1	1	4	2

	1958	1963
Suspended matter	171	21
Albuminoid nitrogen	12	3
Oxygen absorbed 4 hours 27°C	85	15
Therefore impurity figure (approx)	102	22
Oxygen absorbed 5 days 20°C (B.O.D)	530	68
Samples	1 (County lab.)	6 (P.L.A. lab.)

The impurity figure adopted by P.L.A. is calculated thus: (alb. ammonia x 10 + oxygen abs. 98°F) ÷ 2. The figure for effluents entering the Thames here is not expected to exceed 70, albuminoid ammonia and oxygen absorbed in 3 hours not being expected to exceed 7 and 70 p.p.m respectively. Standards for guidance appear to be changing and the impurity figure useful for quick assessment does not seem to receive now the attention given to it in the past. Standards vary with local circumstances but as a general guide effluents should have less than 31 p.p.m suspended matter and 21 p.p.m. B.O.D.

IV. FOOD HYGIENE

FOOD PREPARATION. Defects remedied as a result of the attention of the Council's Public Health Inspectors have been as follows:-

	1958	1959	1960	1961	1962	1963
Unsuitable surfaces	8	6	2	1	1	-
Clothing cleanliness	-	-	-	2	-	1
Sanitary accommodation provided	1	-	1	1	6	1
" " cleansed	-	-	-	-	4	4
" " repaired	1	-	-	-	4	3

REGISTERED PREMISES. Regulations require this Council to register distributors of milk i.e. dairies other than dairy farmers.

	1958	1959	1960	1961	1962	1963
Distributors on register	18	18	18	18	21	21

Certain premises are required to be registered. Those registered 1958-63 were:-

	1958	1959	1960	1961	1962	1963
Sausage making etc.	-	-	-	-	1	-
Storage and sale of ice cream	2	1	2	3	2	-
Manufacture and sale of ice cream	-	-	-	-	-	-

As a result the total premises registered in December 1963 were:

Sausage making etc.	1
Storage and sale of ice cream	34
Manufacture and sale of ice cream	1

SLAUGHTERING AND MEAT INSPECTION.

The last slaughterhouse to operate was used only for the slaughter of pigs and sheep and ceased to operate in 1957. From 1958-63 all retail butchers obtained their supplies from wholesalers elsewhere and there were no slaughterhouses in this district. In 1960 a review showed that supplies were adequate to meet demand and that no slaughterhouse was needed here. Thus the Council's Public Health Inspectors were not called upon to carry out meat inspection. No slaughterman was licenced by this Council.

SEISURE OF UNSOUND FOOD. The amount of unsound food surrendered has been:

	Meat	Other foods
1958	21 lbs. tinned ham	44 lbs. tinned Chinese frozen egg.
1959	-	252 lbs. fish. 60 lbs. dried fruit. 468 packets frozen food. 3,073 tins various foods.
1960	-	1,752 tins various foods. 8 lbs. bacon. 1 turkey.
1961	20 lbs. beef 12 lbs. tinned corned beef. 4 lbs. tinned luncheon meat.	518 tins various foods.
1962	30 lbs. lambs livers 18 lbs. corned beef 29 lb. gammon bacon 14 lbs. tinned ham 4 lbs. tinned luncheon meat.	2 lbs. creamed rice. 94 tins various foods.
1963	2 lbs. tinned meat	3 pints ice cream. 1 pint water ice. 72 tins varied foods.

IV. FOOD HYGIENE (Continued)

FOOD UNFIT FOR CONSUMPTION EXPOSED FOR SALE. The items of food the fitness of which was the subject of complaint by customers were:

1958.

Raspberry Snow Fruit	Complaint of bad taste. No harmful additives found.

1962.

Mineral water	Foreign odour contamination.

LABORATORY EXAMINATIONS.

Ice Cream. Samples taken by the Council's Public Health Inspectors were graded as follows:

	1958	1959	1960	1961	1962	1963
Grade I	148	69	89	92	109	77
Grade II	15	11	16	14	4	18
Grade III	-	-	1	-	1	1
Grade IV	-	-	-	-	-	1

Milk. Up to 1960 this Council had the duty to grant or refuse to grant dealers licences to distributors. From 1961 onwards this duty was carried out by the Food and Drugs Authority i.e. the County Council. Milk sold under certain designations is expected to comply with certain designation tests. Samples submitted to laboratory by the Council's P.H.I's have given the following results:

	1958	1959	1960	1961	1962	1963
Satisfactory						
Tuberculin Tested	-	-	-	-	10	1
Pasteurised	39	22	39	-		
Sterilized	44	31	40	-		
Unsatisfactory						
Sterilized	-	-	1			

V. FOOD CONTENT

Sampling. Summaries of sampling by the County sampling officers 1958-1963 were as follows:

	1958	1959	1960	1961	1962	1963
Milk	14	10	10	13	10	10
Drugs	6	5	4	4	5	4
Spirits	2	2	2	2	2	2
Other samples	13	16	16	16	17	17
	35	33	32	35	34	33

All the above samples were genuine with the exception of the following:

1958	Analysis	Action taken
Fruit lolly	At most 2% fruit juice	Manufacturers agreed to amend labels.
Fruit lolly	At most 1% fruit juice	
1959		
Rum and butter toffees	No butter and not more than trace of rum	Wording of labels amended

VI. AIR HYGIENE

DOMESTIC.

No smoke control orders have been made for submission to the Minister for confirmation. The district is outside the "black area".

In the period 1958/63 the Council's Public Health Inspectors have received no complaints of smoke nuisance from domestic sources.

INDUSTRIAL.

The Council's Public Health Inspectors have dealt with complaints of pollution from the following sources:

1958	Paper Mills	Excessive smoke from grass recovery plant.
1961	Cement Works	Dust nuisance.

Paper Mills. In regard to the above smoke nuisance research was being undertaken by the mills to find a remedy. The works were visited by the Council's Chief Public Health Inspector with the Alkali etc. Works Act Inspector and initially an exemption certificate was given for a temporary period.

Modifications were carried out during 1959 and 1960 and the furnaces were improved in 1961 and after this no further exemption certificates were issued. The chimney stack was kept under observation. Apart from one occasion in 1961, for which there was immediate remedy, no further nuisance was observed.

Cement Works. In regard to the dust nuisance, the Alkali etc. Works Act Inspector was informed. We gather the electrostatic precipitators were cleaned out but this of course is only a fragmentary feature of an extensive continuing problem.

MEASUREMENTS.

Monthly analyses of deposit and exposed lead dioxide with the daily measurements of smoke and acidity were included in the readings distributed by the Thames-side Joint Committee for the Abatement of Atmospheric Pollution.

A selection of the smoke and sulphur dioxide readings relating to this vicinity and to the periods of most interest to us is given in the following tables. The readings of Metropolitan Islington are given for comparison.

To provide an idea of the trend of the dust nuisance here the following procedure has been used to provide the graphs of deposits.

(i) The monthly deposits of each gauge have been totalled to give the readings for six month periods for each gauge.

(ii) The readings east of the vicinity of the cement works have been totalled for all such gauges.

(iii) The readings west of the works have been similarly totalled.

(iv) These six-monthly totals have been plotted on a logarithmic scale whatever the absolute figure. As all Thames-side gauges are included, the trend for the whole area is portrayed.

(v) To observe the trend in our immediate vicinity there have been selected four gauges in our neighbourhood to the lee of the works in the prevailing wind. In using "Tons per Square Mile" as units it might be useful to bear in mind that the total deposit in rural areas is around 60 tons per square mile per six months.

VOLUMETRIC INSTRUMENT MEASUREMENTS

Micrograms per cubic metre

	Northfleet U.D. Site 5			Dartford Borough Site 6			Dartford R.D. Site 8			Islington M.B. Site 1		
	Smoke	SO_2	Ratio	Smoke	SO_2	Ratio	Smoke	SO_2	Ratio	Smoke	SO_2	Ratio
Average concentration												
1961/62												
Jan	95	140	0.68	143	186	0.77	97	139	0.77	88	252	0.35
Feb	100	226	0.44	131	223	0.59	77	141	0.55	53	201	0.26
Mar	105	147	0.71	129	195	0.66	95	155	0.61	152	270	0.56
Ap-Sept	22	70	0.31	39	94	0.41	26	58	0.44	52	116	0.44
Oct-Mar	-	-	-	140	180	0.77	-	-	-	111	264	0.42
1962/63												
Jan	169	325	0.52	207	213	0.57	156	288	0.54	336	413	0.81
Feb	149	187	0.80	213	294	0.72	151	211	0.72	301	320	0.94
Mar	40	65	0.62	59	105	0.56	41	65	0.63	143	161	0.89
Ap-Sept	30	79	0.38	39	100	0.39	31	63	0.49	63	107	0.59
Oct-Mar	129	185	0.70	157	254	0.62	-	-	-	266	326	0.82
Highest daily concentration												
1961/62												
Jan	301	498		687	739		400	965		236	542	
Feb	330	625		374	475		189	294		157	508	
Mar	345	329		436	389		345	437		249	520	
Ap-Sept	70	289		123	288		190	192		200	349	
Oct-Mar	586	625		714	739		461	965		443	1042	
1962/63												
Jan	682	603		642	949		484	547		1128	1747	
Feb	381	427		343	474		239	544		522	640	
Mar	192	264		280	301		190	210		362	393	
Ap-Sept	112	623		137	491		123	400		245	391	
Oct-Mar	900*	1068*		1166*	1852*		1258*	1305*		1680*	3303*	

*The December 1962 fog. Since these figures were prepared amended calculations for smoke have been obtained from D.S.I.R. These mainly apply to large readings. Revised calculations of highest daily concentrations in the four areas listed for Oct. 1962 - March 1963 are 1055, 1166, 1788 and 3904 respectively.

LEAD DIOXIDE INSTRUMENT

Milligrams SO_3 per 100 sq.cms. lead dioxide surface per day

		S'combe U.D. Site 1	N'fleet U.D. Huggens Col. Site 1	Dartford B. Market St. Site 4	Dartford R.D. Horns Cross Site 8	Islington Met. B. Site 1
1961/62	Jan	1.1	1.1	1.6	1.0	2.8
	Feb	2.6	2.3	2.8	1.2)	3.5
	Mar	1.7	1.2	2.0	1.2)	3.4
	Year	1.4	1.1	1.4	-	1.8
1962/63	Jan	2.7	3.1	3.4	2.0	3.1
	Feb	1.7	3.0	3.0	1.4	3.0
	Mar	1.0	0.9	1.6	0.7	2.0
	Ap-Sep	1.0	0.6	1.1	0.4	1.1
	Oct-Mar	1.8	2.0	2.5	1.3	2.4

APPENDIX VI. AIR HYGIENE (continued)

SMOKE AND SO_2 POLLUTION 1958/63

Year ended March	Dartford Borough 6 (D2) Market St.	Dartford R.D. 8 (B3) White Oak	Dartford R.D. 7 (X) Horns X.	Northfleet U.D. 5 (X) Town Hall	Islington Met. B. 1 A2 Tr.Centre	Islington Met. B. 2 A1 Town Hall	Sheffield C.B. 60 (01) Redmires
	Smoke.	$\mu g/m^3$.	Averages of monthly averages of daily readings				
			Six months April to September				
1958	50	-	-	-	90	90	-
1959	44	-	-	-	86	71	14
1960	*	-	29	-	70	73	35
1961	43	-	24	32	63	64	31
1962	39	26	46	22	52	56	31
1963	39	31	8	30	63	64	*
			Six months October to March				
1958	160	-	-	-	360	330	-
1959	174	-	131	-	*	385	80
1960	*	-	65	103	252	267	68
1961	132	88	76	98	192	194	50
1962	140	*	70	102*	111	*	78
1963	157	124*	102	129	266	252	93
			Year April to March				
1958	105	-	-	-	225	210	-
1959	109	-	-	-	*	228	47
1960	*	-	47	-	161	176	52
1961	88	-	50	65	128	129	40
1962	90	*	58	62*	82	*	54
1963	98	77*	55	80	164	158	*
	SO_2	$\mu g/m^3$.	Averages of monthly averages of daily readings				
			Six months April to September				
1958	86	-	-	-	114	143	-
1959	66	-	-	-	133	146	39
1960	*	-	71	-	140	151	57
1961	92	-	45	58	122	123	86
1962	94	58	61	70	116	132	57
1963	100	63	68	79	107	126	*
			Six months October to March				
1958	200	-	-	-	344	400	-
1959	220	-	112	-	*	489	94
1960	*	-	91	114	273	339	90
1961	169	107	91	91	267	328	94
1962	180	*	88	142*	264	*	78
1963	254	185*	145	185	326	395	114
			Year April to March				
1958	143	-	-	-	228	286	-
1959	143	-	-	-	*	318	66
1960	*	-	81	-	206	245	74
1961	130	-	68	74	194	226	90
1962	137	*	74	106*	190	*	68
1963	177	124*	107	132	216	260	*

SMOKE AND SO_2 POLLUTION 1958/63 (continued)

Year ended March	Dartford Borough 6 (D2) Market St.	Dartford R.D. 8 (B3) White Oak	Dartford R.D. 7 (X) Horns X.	Northfleet U.D. 5 (X) Town Hall	Islington Met. B. 1 A2 Tr.Centre	Islington Met. B. 2 A1 Town Hall	Sheffield C.B. 60 (01) Redmires
			Smoke/SO_2 ratios of above concentrations				
			Six months April to September				
1958	.58	-	-	-	.79	.63	-
1959	.67	-	-	-	.65	.49	.36
1960	*	-	.41	-	.50	.49	.61
1961	.47	-	.54	.55	.52	.52	.36
1962	.41	.44	.75	.31	.44	.42	.54
1963	.39	.49	.12	.38	.59	.51	*
			Six months October to March				
1958	.80	-	-	-	1.05	.83	-
1959	.79	-	1.17	-	*	.79	.87
1960	*	-	.71	.90	.92	.79	.76
1961	.78	.82	.84	1.08	.72	.59	.53
1962	.77	*	.79	.72*	.42	*	1.00
1963	.62	.67*	.70	.70	.82	.64	.82
			Year April to March				
1958	.74	-	-	-	.99	.73	-
1959	.76	-	-	-	*	.72	.71
1960	*	-	.58	-	.78	.70	.70
1961	.68	*	.73	.88	.66	.57	.44
1962	.65	*	.78	.58*	.43	*	.79
1963	.55	.62*	.51	.61	.76	.61	x

National Survey Site Classification

- A1 Residential area with high-density housing (probably terraced) or with medium-density housing in multiple occupation, in either case surrounded by other built-up areas.
- A2 Predominantly A1, but interspersed with some industrial undertakings.
- B3 Residential area with medium-density housing surrounded by or interspersed with areas with low potential A.P. output (parks, fields, coast), or any residential area with low-density housing.
- D2 Small town centre; limited commercial area mixed with old residential housing and possibly minor industry.
- 01 Open country but not entirely without source(s) of pollution, e.g., airfields.
- X Unclassified site, or mixed area.

None of the above gauge sites was in a smoke control area before the end of 1963, although there may have been a smoke control area within the Local Authority boundary.

- = Use of gauge not begun.

* Unless the gauge runs without a more-than-5 days-stop and runs for a minimum number of days in a month the average for that month is excluded from the monthly averages listed in D.S.I.R's yearly tables. Unless an average for every month is given no six-monthly or yearly average is given in these tables. Hence a mechanical defect or Bank Holiday which prevented daily readings for more than 5 continuous days meant that averages for that six months and year are not published. Where figures are given with the asterisk they are from local calculations.

SMOKE AND SO_2 POLLUTION FOG READINGS

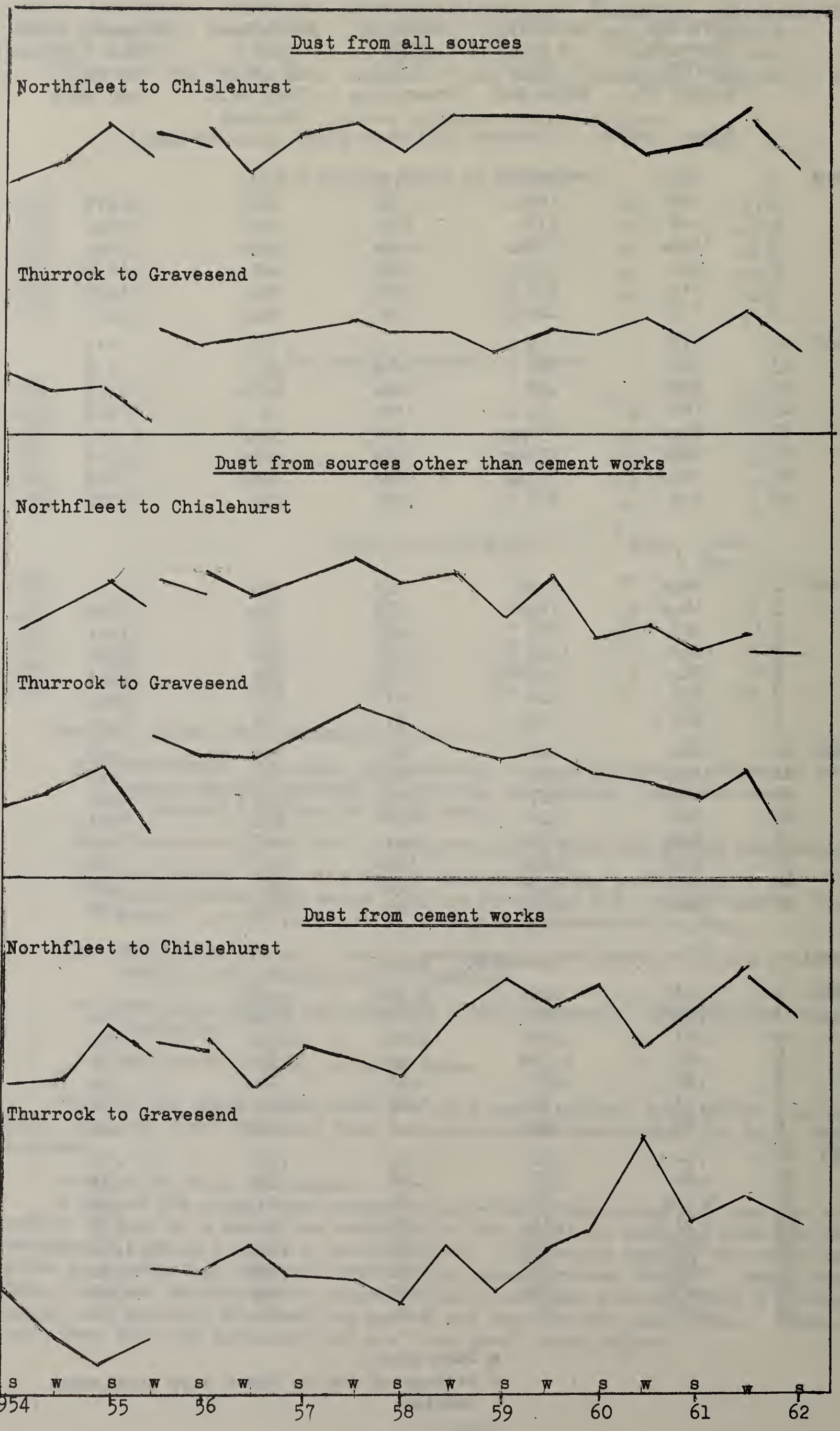
		Dartford Borough 6 (D2) Market St.	Dartford R.D. 8 (B3) White Oak	Dartford R.D. 7 (X) Greenhithe	Northfleet U.D. 5 (X) Town Hall	Islington M.B. (D.S.I.R.) 2 (A1) Town Hall
		Smoke /ug/m³. Interim Calibrate Curve (i.e. revised)				
Dec. 1962	2	282/	168/	213/	229/	-
	3	282/	168/	213/	229/	575
	4	348	277	337	473	1264
	5	1166*	1788*	1209*	1055*	3904
	6	246	431	410	460	1196
	7	312	371	416	550	1599
	8	113	481/	34	64/	207
Jan. 1963	22	112	49	71	80	317
	23	348	308	361*	263	679
	24	608*	432	463*	691*	1355
	25	185	94	115	N	858
	26	634*	251/*	35	319/	560
	27	166/	251/*	166/	319/	318
	28	166/	251/*	166/	319/	285
	29	178	108	190	166	308
		SO_2 /ug/m³.				
Dec. 1962	2	184/	175/	92/	182	-
	3	184/	175/	92/	182/	720
	4	287	292	148	316	1341
	5	1852	1305	815	1068	3340
	6	864	726	678	689	2143
	7	839	529	391	535	2262
	8	202	78/	81	123	431
Jan. 1963	22	264	146	182	159	453
	23	393	399	335	382	814
	24	464*	547	296	430	1585
	25	505	409	440	586	1621
	26	949*	433/	140	467	515
	27	346/	433/	126/	467	266
	28	346/	433/	126/	467	285
	29	299	297	153	209	255
		Smoke/SO_2 Ratio				
Dec. 1962	2	1.53/	.96	2.32/	1.26/	-
	3	1.53/	.96	2.32/	1.26/	.80
	4	1.21	.95	2.28	1.50	.94
	5	.63	1.37*	1.48	.99	1.18
	6	.28	.59	.60	.67	.56
	7	.37	.70	1.06	1.03	.71
	8	.56	.62/	.42	.52/	.48
Jan. 1963	22	.42	.34	.39	.50	.70
	23	.89	.77	1.08	.69	.83
	24	1.31*	.79	1.56	1.61*	.85
	25	.37	.23	.26	N	.53
	26	.67*	.58/	.25	.68/	1.09
	27	.48/	.58/	1.32	.68/	1.20
	28	.48/	.58/	1.32	.68/	1.00
	29	.60	.36	1.24	.79	1.21

* Dark stain

/ Average of two or three days continuous samples.

TREND OF DEPOSITED DUST. THAMES-SIDE (i)

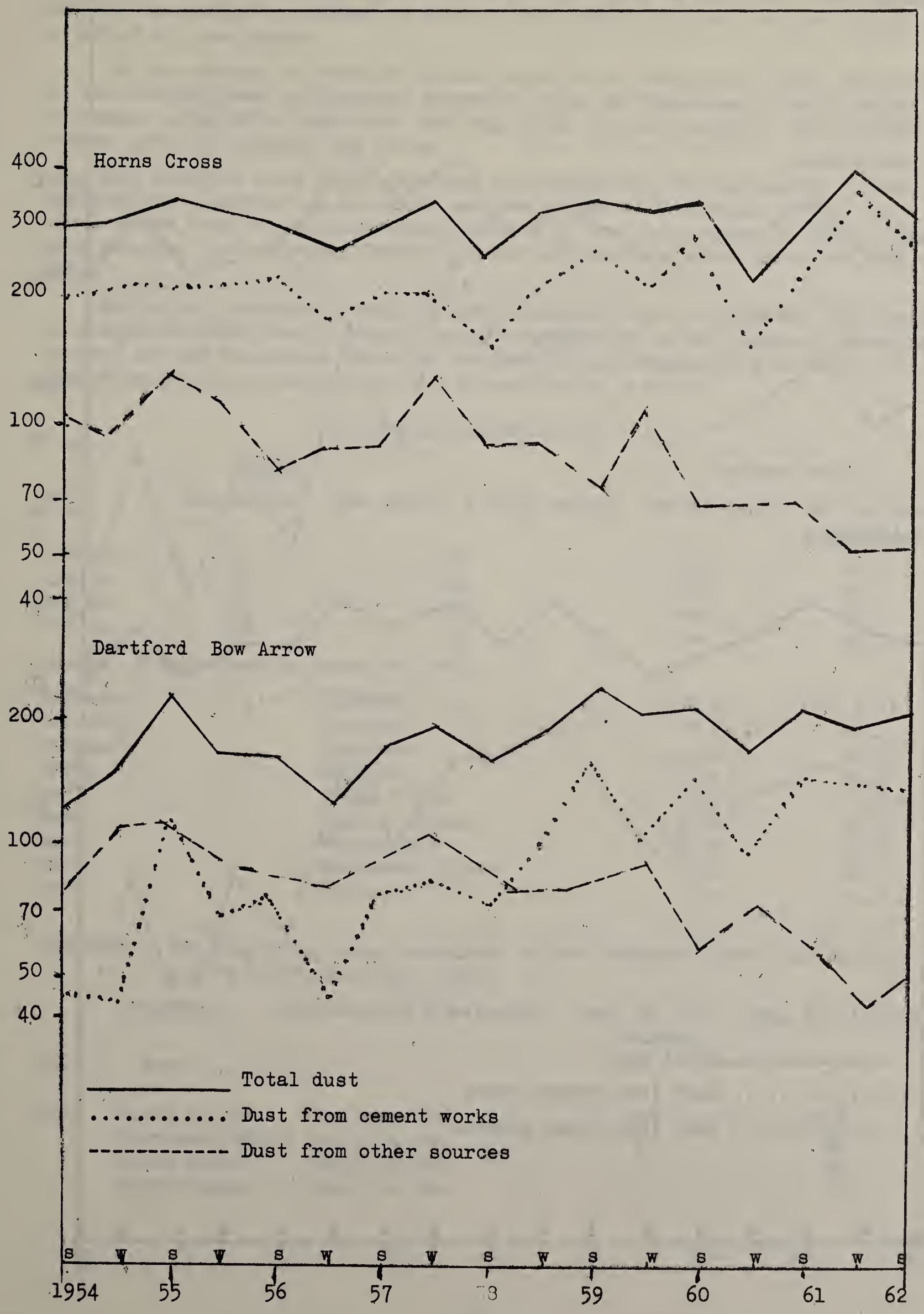
Totals of 6 monthly readings of deposit gauges



TREND OF DEPOSITED DUST THAMES-SIDE (ii)

Dust deposited in six month periods as measured by certain gauges

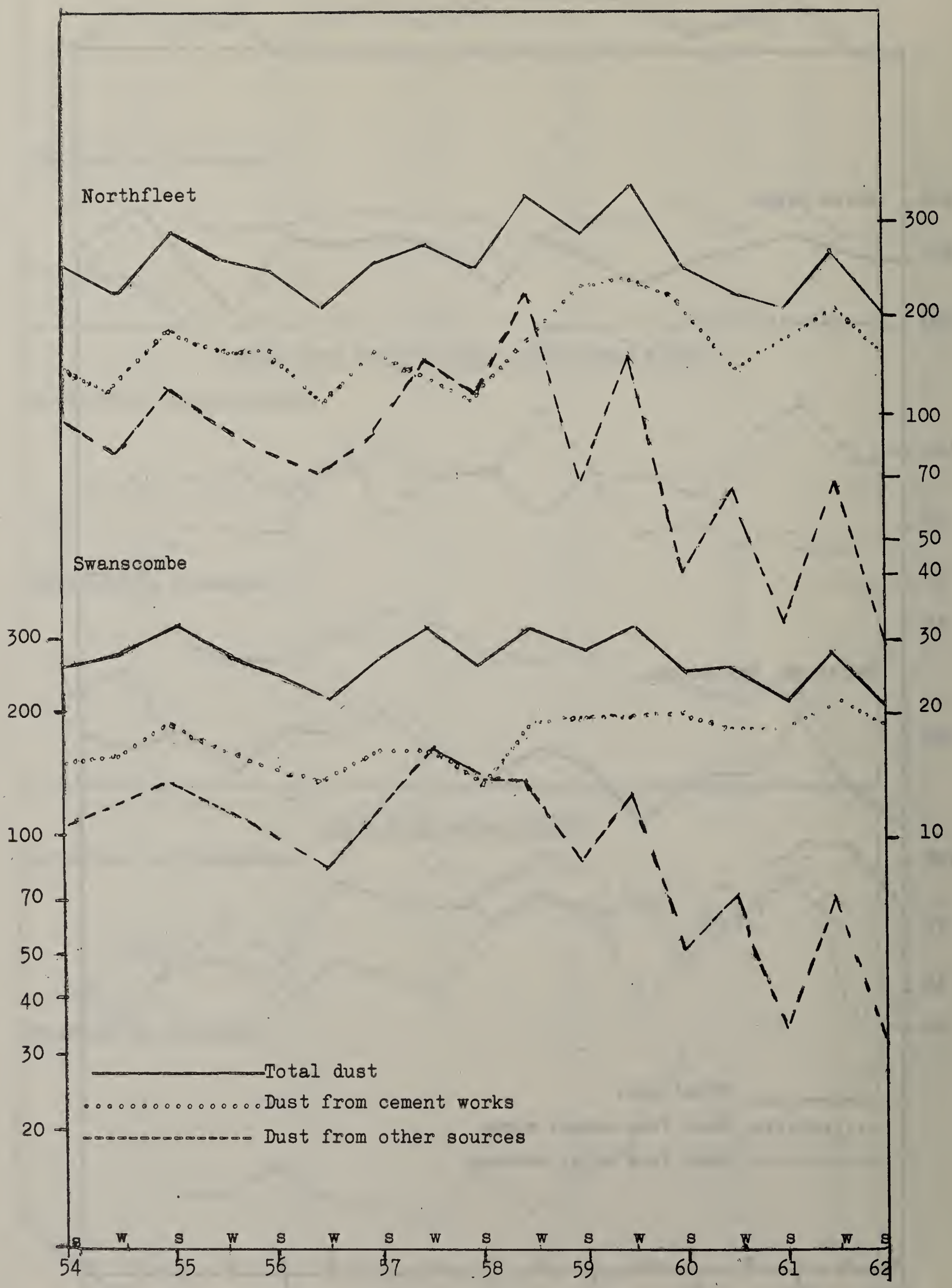
"Tons per square mile"



TREND OF DEPOSITED DUST THAMES-SIDE (ii)(contd)

Dust deposited in six month periods as measured by certain gauges

"Tons per square mile"



VII - RADIOACTIVITY

FOODSTUFFS. The County Analyst referring to 1963 and the whole county wrote -

"It will be remembered that milk and dairy products are the main source of radioactive material in the diet and therefore special emphasis has been placed on milk, the samples examined being a composite of all those received under the Food and Drugs Act each month.

The resumption of the testing of atomic weapons in the autumn of 1962 caused a rise in the amount of contamination, but due to the time lag before the debris from these explosions began to sink down to the lower atmosphere and the unusually dry winter of 1962-3, the effect of the rise was spread over a period of some months.

In the absence of further weapon tests it is anticipated that the amounts of the longer lived radioactive elements, such as Strontium 90 will gradually decrease, although a temporary rise may occur in the spring of 1964 due to the annual cycle of weather and crops.

The expected more rapid decrease in the amounts of the shorter lived radioactive elements has occurred and the amount of Strontium 89 fell to a level below that of accurate determination by the late autumn of 1963. The much shorter lived element Iodine 131 has not been detected since the end of 1962.

The significance of levels of Strontium 90 found in foods may be assessed by comparison with the "working levels" recommended by the Medical Research Council of 400 Strontium Units in the diet of individuals and of 130 Strontium Units in the diet of the population as a whole".

PICOCURIES STRONTIUM 90.

	Milk		Canteen meals	
1963	Per litre.	Per gm Ca. (Sr.90 units)	Per kilo.	Per gm Ca.(Sr.90 units)
1st qr.	10	9	15	18
2nd qr.	23	20	20	24
3rd qr.	34	30	26	33
4th qr.	33	28	34	38

Month.	Other specific items of food.		
February	Carrots	2.4	7.5
February	Cabbage	7.7	10.7
February	Potatoes	1.4	15.0
March	Sprouts	16.6	35.0
May	Plain flour	5.9	4.0
May	Spring greens	52.0	28.0
May	Watercress	67.0	45.0
May	Wholemeal flour	33.0	27.0
June	Lettuce	70.0	90.0

INDUSTRY. The following were registered by the Ministry under the Radioactive Substances Act, 1960:

	Premises.	Radioactive Substance.	Max. No. of Sources.	Max. Millicuries.
1962	None	-	-	-
1963	Paper Mills	Thallium 204	5	125
	Parchment Mills	Thallium 204	2	50
	Kraft Mills	Thallium 204	3	55
	Paper Sacks	Thallium 204	1	15

APPENDIX VIII - DISINFECTION, DISINFESTATION AND RODENT CONTROL

DISINFECTION AND DISINFESTATION

Northfleet Urban District Council have an arrangement with Swanscombe Urban District Council whereby facilities for disinfection and disinfestation of premises and articles are provided by us on a rechargeable basis.

From 1959 to 1963 these facilities were used as follows:-

	Northfleet						Swanscombe					
	1958	1959	1960	1961	1962	1963	1958	1959	1960	1961	1962	1963
Scarlet fever	2	8	1	-	-	-	-	-	-	-	-	-
Tuberculosis	5	4	4	1	3	-	1	1	-	-	-	-
Scabies	1	-	-	-	3	-	-	-	-	-	-	4
Typhoid	1	-	-	1	-	-	-	-	-	-	-	-

Premises disinfected

	1958	1959	1960	1961	1962	1963
Tuberculosis	2	-	-	-	-	-
Scarlet fever	2	15	3	-	-	-

The occasions when advice was needed for disinfestation of insect or vermin invasions were few in number. (Rodents excepted).

RODENT CONTROL.

	1958	1959	1960	1961	1962	1963
Complaints	45	38	31	91	67	69
Infestations found by independent survey	353	12	17	127	315	93
Properties inspected:						
Local authority	48	8	14	18	11	-
Dwelling houses	210	77	92	78	190	146
Other premises	71	34	48	137	59	72
Agricultural	13	-	5	16	3	6
	342	119	159	249	263	224
Properties found with major rat infestations:						
Local authority	2	2	-	-	-	2
Dwelling houses	-	-	-	-	-	-
Other premises	7	3	2	2	3	2
Agricultural	2	-	1	-	1	-
	11	5	3	2	4	4
Properties found with minor rat infestations:						
Local authority	2	1	3	3	8	1
Dwelling houses	31	32	30	65	71	45
Other premises	1	4	10	12	11	6
Agricultural	-	-	-	-	2	2
	34	37	43	80	92	54
Properties found with major mice infestations:						
Local authority	-	-	-	-	-	-
Dwelling houses	-	-	-	-	7	-
Other premises	1	-	-	-	2	1
Agricultural	-	-	-	-	-	-
	1				9	1

	1958	1959	1960	1961	1962	1963
Properties found with minor mice infestations:						
Local authority	-	-	-	-	-	-
Dwelling houses	9	6	3	10	-	12
Other premises	2	-	-	2	2	2
Agricultural	-	-	-	-	-	-
	11	6	3	12	2	14
Total treatments carried out:						
Local authority	4	8	3	6	11	16
Dwelling houses	40	77	33	178	177	114
Other premises	11	34	12	80	63	36
Agricultural	2	-	1	5	-	6
	57	119	49	269	251	172

APPENDIX IX - HYGIENE OF PLACES OF WORK.

FACTORIES. The Council enforces the provision of sanitary conveniences in all factories. In factories without mechanical power the Council also enforces the provision of adequate cleanliness, temperature, ventilation and drainage and freedom from overcrowding. The Council keeps a register of outworkers.

	1958	1959	1960	1961	1962	1963
Factories with mechanical power on register	28	27	27	27	27	27
Factories without mechanical power on register	6	6	6	6	6	6
Other premises in which provision of sanitary accommodation is enforced by L.A. e.g. building sites	-	3	-	3	5	-
Inspections	38	36	49	22	84	53
Written notices served	13	7	17	7	23	1
Outworkers in Swanscombe U.D.	-	-	-	-	-	-

SHOPS.

No. of food premises	66	66	66	66	74	72
No. of premises registered under S.16.	47	47	47	47	46	46
No. of inspections	271	302	309	287	280	225

APPENDIX X. NOISE.

No complaints of noise nuisance.

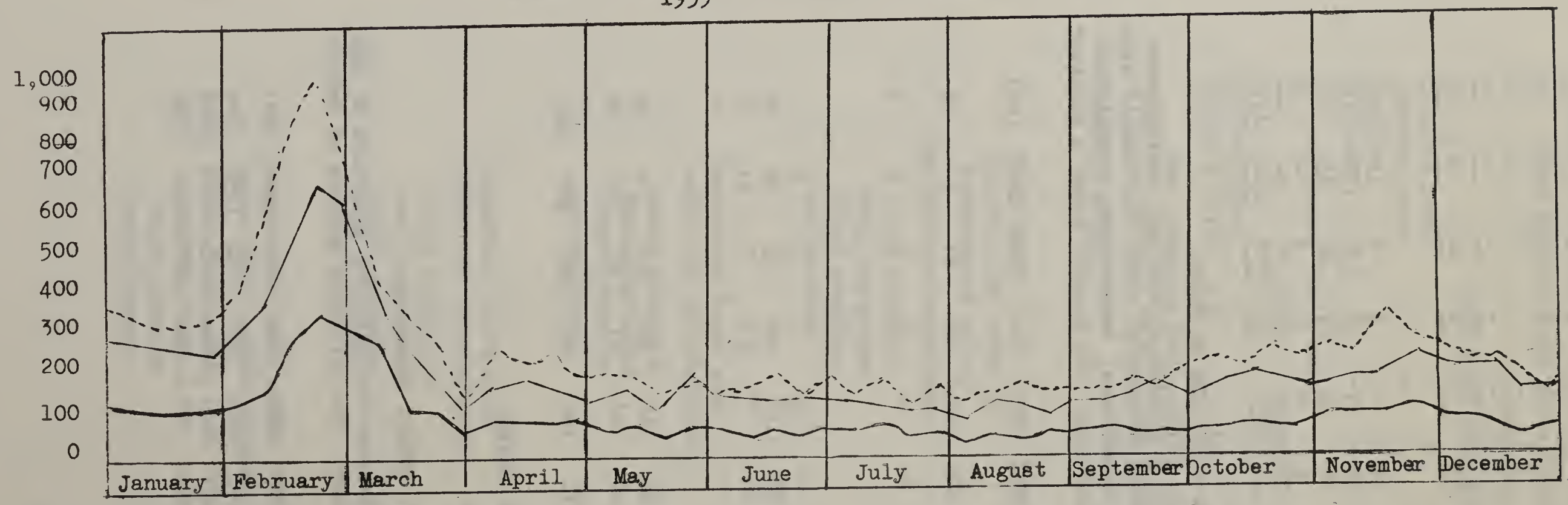
APPENDIX XI. PUBLIC CLEANSING.

The Council's Public Cleansing Service is under the direction of the Council's Chief Public Health Inspector. The following amounts of refuse were collected and disposed of:

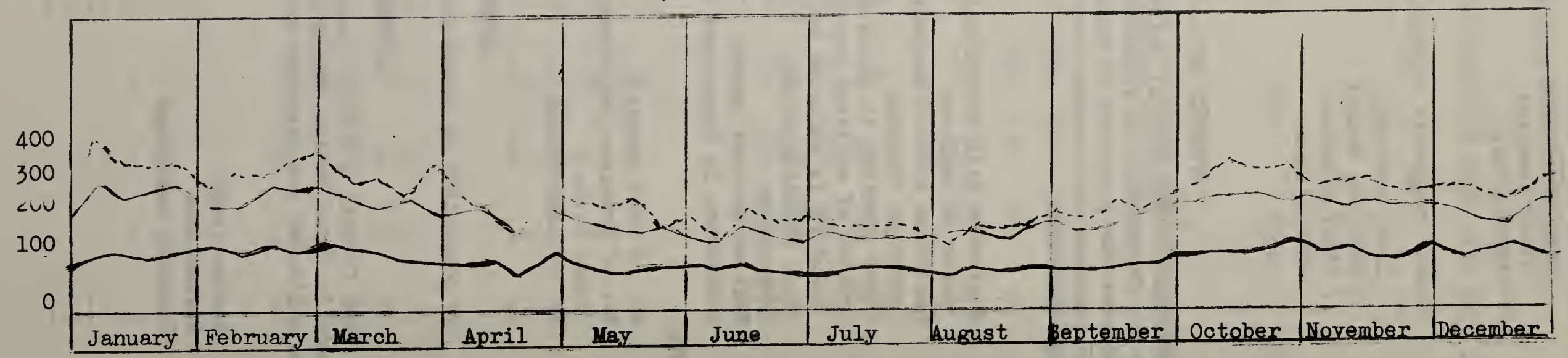
	1958	1959	1960	1961	1962	1963
Refuse loads	1189	1124	899	1144	1258	996
Refuse tons	2471	2431	1944	2474	2720	1992
Cesspool emptyings	464	462	351	378	434	359

MIN. of P & N.I. FIRST CERTIFICATES OF INCAPACITY

1959



1960



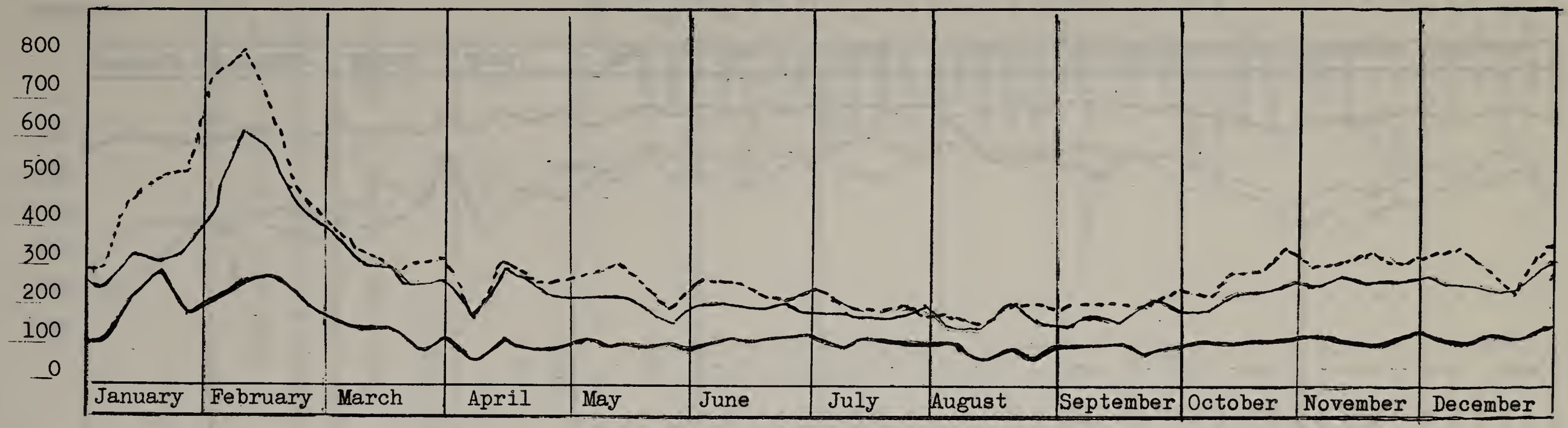
Dartford ----------

Gravesend _____

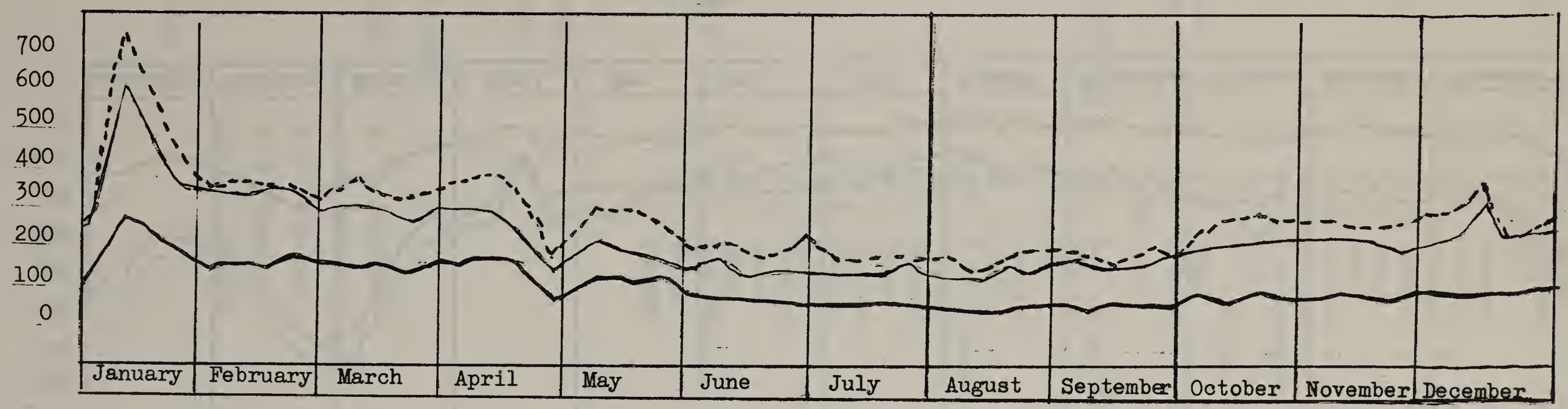
Sevenoaks _____

MIN. of P. & N.I. FIRST CERTIFICATES OF INCAPACITY

1961



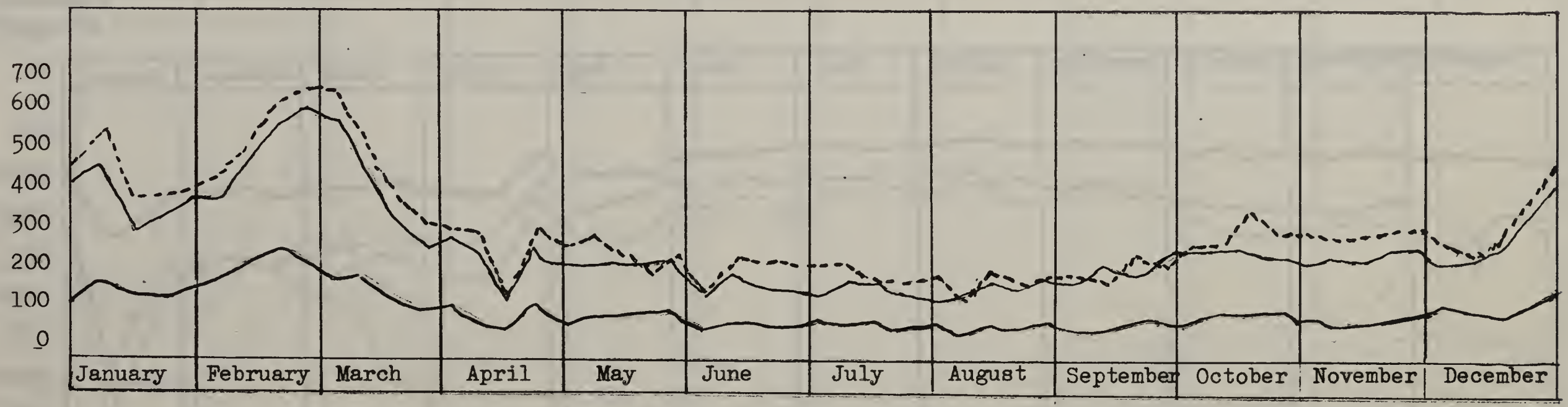
1962



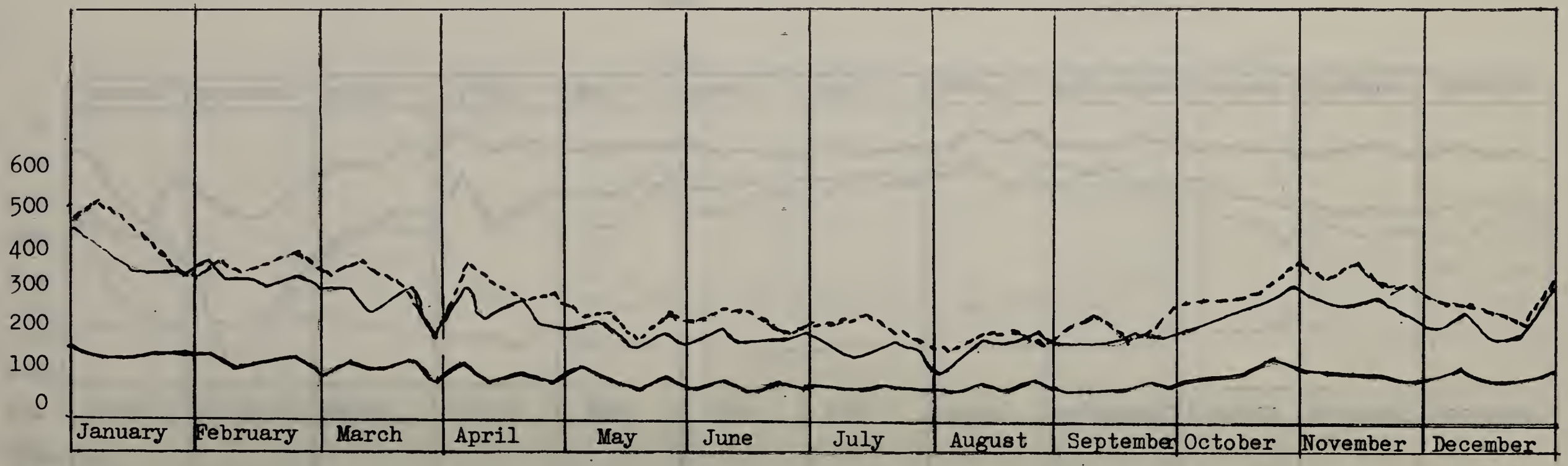
Dartford ----------
Gravesend _____
Sevenoaks _____

MIN. of P & N.I. FIRST CERTIFICATES OF INCAPACITY

1963



1964



Dartford ----------
Gravesend _____
Sevenoaks _____

SWANSCOMBE URBAN DISTRICT COUNCIL

PUBLIC HEALTH COMMITTEES

1958-1959	1959-1960	1960-1961
Clr. P. Connolly (Ch'man)	Clr. L.T. Owen (Ch'man)	Clr. W.L. Davidson (Ch'man)
" W.L.Davidson	" W.L. Davidson	" J.H. Arthur
" J.H. Arthur	" J.H. Arthur	" V.E. Bishop
" W. Austen	" E.W. Blackwell	" E.W. Blackwell
" E.W. Blackwell	" V.E. Bishop	" T. Bodle
" J. Bodle	" T. Bodle	" T.G. Burgess
" T.G. Burgess	" T.G. Burgess	" C.W. Butcher
" C.W. Butcher	" C.W. Butcher	" P. Connolly
" Mrs. A.O. Daniels	" F.H.J. Garland	" G.C. Hammond
" F.H.J. Garland	" G.C. Hammond	" W.O. Keary
" G.C. Hammond	" W.O. Keary	" W.L. Lamb
" W.O. Keary	" W.L. Lamb	" C.R. Mitchell
" W.L. Lamb	" A.H. Madden	" J.T. Mitchell
" A.F. Siggers	" J.T. Mitchell	" Mrs. E.E. Thurlow
" J. Stevenson	" A.F. Siggers	" P.J. Wells
" Mrs. E.E.Thurlow	" J. Stevenson	" Mrs. M.J. Wright
" Mrs. M.J.Wright	" Mrs. E.E.Thurlow	" L.T. Owen
" L.T. Owen	" Mrs. M.J.Wright	" A.F. Siggers
1961-1962	**1962-1963**	**1963-1964**
" W.L.Davidson (Ch'man)	" W.L. Davidson (Ch'man)	" Mrs. M.J. Wright (Ch'man)
" T. Bodle	" W.O. Keary	" V.E. Bishop
" T.G. Burgess	" V.E. Bishop	" T. Bodle
" C.W. Butcher	" T. Bodle	" C.W. Butcher
" G.C. Hammond	" T.G. Burgess	" P. Connolly
" C.W. Howell	" C.W. Butcher	" Mrs. I. Davidson
" W.O. Keary	" P. Connolly	" W.L. Davidson
" J.F. Little	" G.C. Hammond	" G.C. Hammond
" A.H. Madden	" W.A. Hicks	" W.A. Hicks
" C.R. Mitchell	" A.H. Higgins	" A.H. Higgins
" J.T. Mitchell	" C.W. Howell	" C.W. Howell
" L.T. Owen	" A.H. Madden	" W.O. Keary
" P.J. Wells	" J.T. Mitchell	" J.T. Mitchell
" Mrs. M.J. Wright	" L.T. Owen	" L.T. Owen
" V.E. Bishop	" P.J. Wells	" D.J. Smith
" P. Connolly	" Mrs. M.J. Wright	" Mrs. G.M. Wells
" W.A. Hicks	" C. R. Mitchell	" P.J. Wells
" A.H. Higgins	" Mrs. G.M. Wells	" T.G. Burgess

CLERK TO THE COUNCIL

Mr. F. L. Sturt

PUBLIC HEALTH OFFICERS

Medical Officer of Health (part time)	1947-1958	M. F. McDonnell
	1958-	J. H. Hudson
Chief Public Health Inspector & Surveyor		A. J. Munford
Public Health Inspector (part time)		F. W. Sharpe
Clerical Assistant		Mrs. S. Manners
